



VIDE-V16505

AMSTRAD



PC2386-65
PERSONAL COMPUTER
SERVICE MANUAL

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Processor	: 80386
Clock Speed	: 20MHz
Wait States	: 0.05
Full Width Main Memory	: 32 bit
Maths Co-Processor Socket	: 80387
RAM (parity checked)	: 4MB
RAM Cache	: 64K / 35ns
Expansion Slots	: 5 x 16 bits
Asynchronous Bus Operation	: .
Hard Disk Option with 1:1 Interleave	: .
Floppy Drives	: .
External 5 $\frac{1}{4}$ ", 3 $\frac{1}{2}$ " Disk Drive &	: .
Tape Streamer Connector	: .
Hercules, CGA, EGA & VGA	: .
Compatible	: .
Bi-Directional Parallel Printer Port	: .
Serial RS232 Port	: .
Battery Backed Clock & Configuration RAM	: .
Mouse - Backed with Microsoft Compatible	: .
.COM & .DRV	: .
101/102 'AT' type Keyboard	: .
Security Lock for Keyboard	: .
Volume Control for Speaker	: .
Built-in LIM 4.0	: .
RAM Division Option to	: .
Conventional/Extended/LIM	: .
Novell Network Compatible	: .
Microsoft	: Server
MS-DOS	: 4.0
Windows	: 386
GW BASIC	: .
Dimensions	
System Unit	
Width	: 415mm
Height	: 160mm
Depth	: 485mm
Keyboard	
Width	: 475mm
Height	: 35mm
Depth	: 200mm

NOTES TO ENGINEERS

Please be advised that no component level repairs are to be carried out on Main CPU PCB. After diagnosis test if the fault is confirmed replace CPU PCB.

This is obtainable from our authorised spares outlet.

The same applies to the floppy disc drives and hard disc drives.

Any attempts to repair or replace any parts or components within these units will invalidate any warranty or part warranty on the item.

Replacement items will be available from our authorised spares outlet.

PSU & Monitors are subject to component level repairs.

Any information which is not published herein may be made available upon special request to Amstrad Spares & Service Department.

SAFETY TEST

All monitors are tested to the following specifications.

1. **Flash Test:** Test at 1.5kV RMS / 3 sec between the live and neutral poles of the mains lead and all accessible metal points on the exterior of the set.
2. **Insulation Resistance Test:** Test at 1.5kV RMS / 3 sec between the live and neutral poles of the mains lead and all accessible metal points on the exterior of the set to show a resistance greater than 4 Mohms.
3. **Earth Continuity Test:** The resistance of the mains lead shall not exceed 0.5ohms.

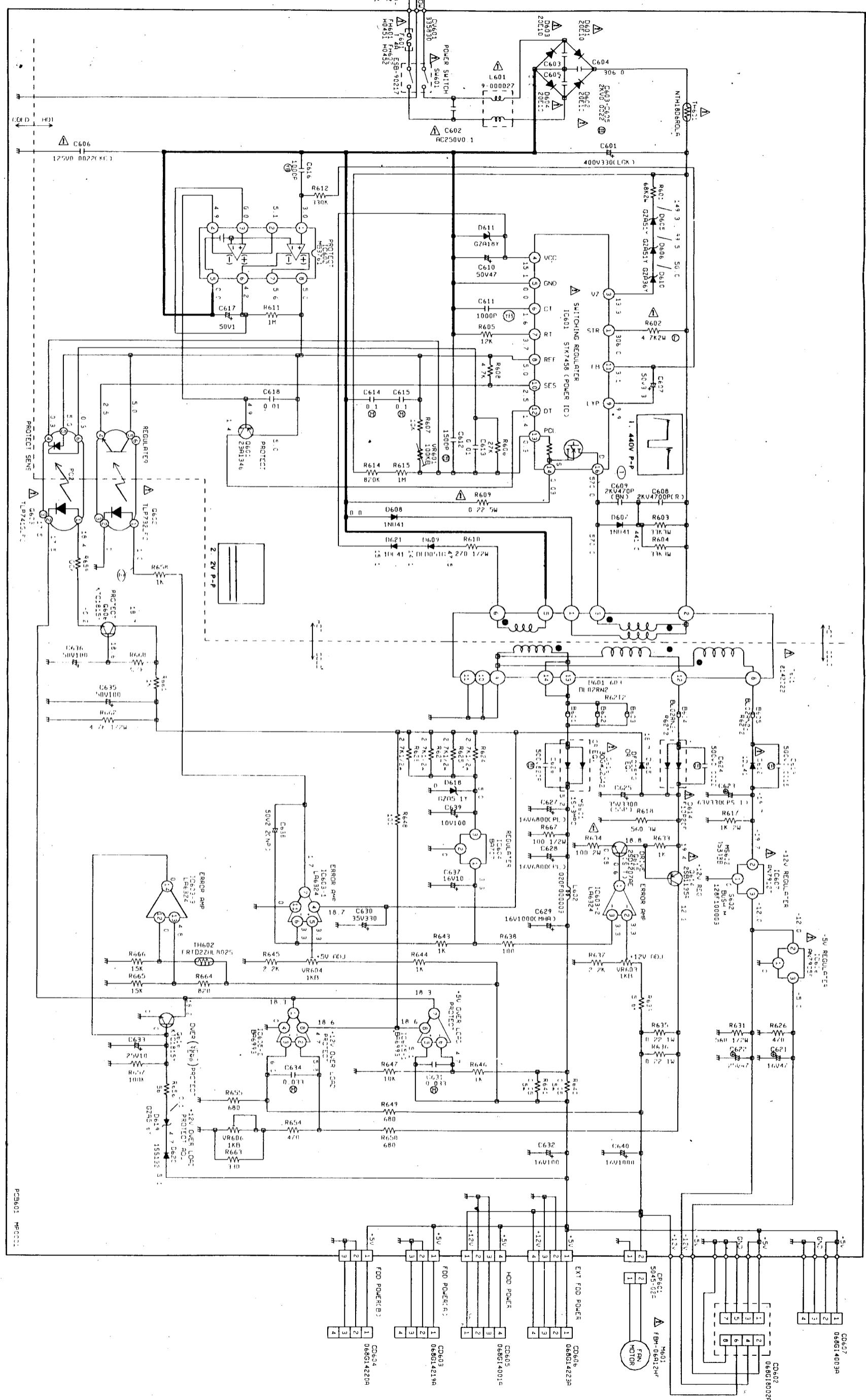
PLEASE NOTE: When any work is completed on this unit, correct safety tests must be carried out to ensure continued electrical safety.

PLEASE NOTE: All parts shown with the part number prefix  are Safety Items and must be replaced with similar items having an identical safety specification.

All those items may be purchased direct from AMSTRAD plc.

In keeping with our policy of continually improving our service and the technical quality of our products, we reserve the right to change component types, manufacturers, sources of supply or technical specification at any time.

POWER SUPPLY CHASSIS SCHEMATIC DIAGRAM



CAUTION: SINCE THESE PARTS MARKED BY Δ ARE CRITICAL FOR SAFETY USE ONLY PARTS LIST ONLY DESCRIBED IN PARTS LIST ONLY

ATTENTION: LES PIÈCES REPÉRÉES PAR UN Δ SONT DES PIÈCES CRITIQUES POUR LA SÉCURITÉ. NE PAS UTILISER DES PIÈCES QUI NE SOIENT PAS DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

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PCB601

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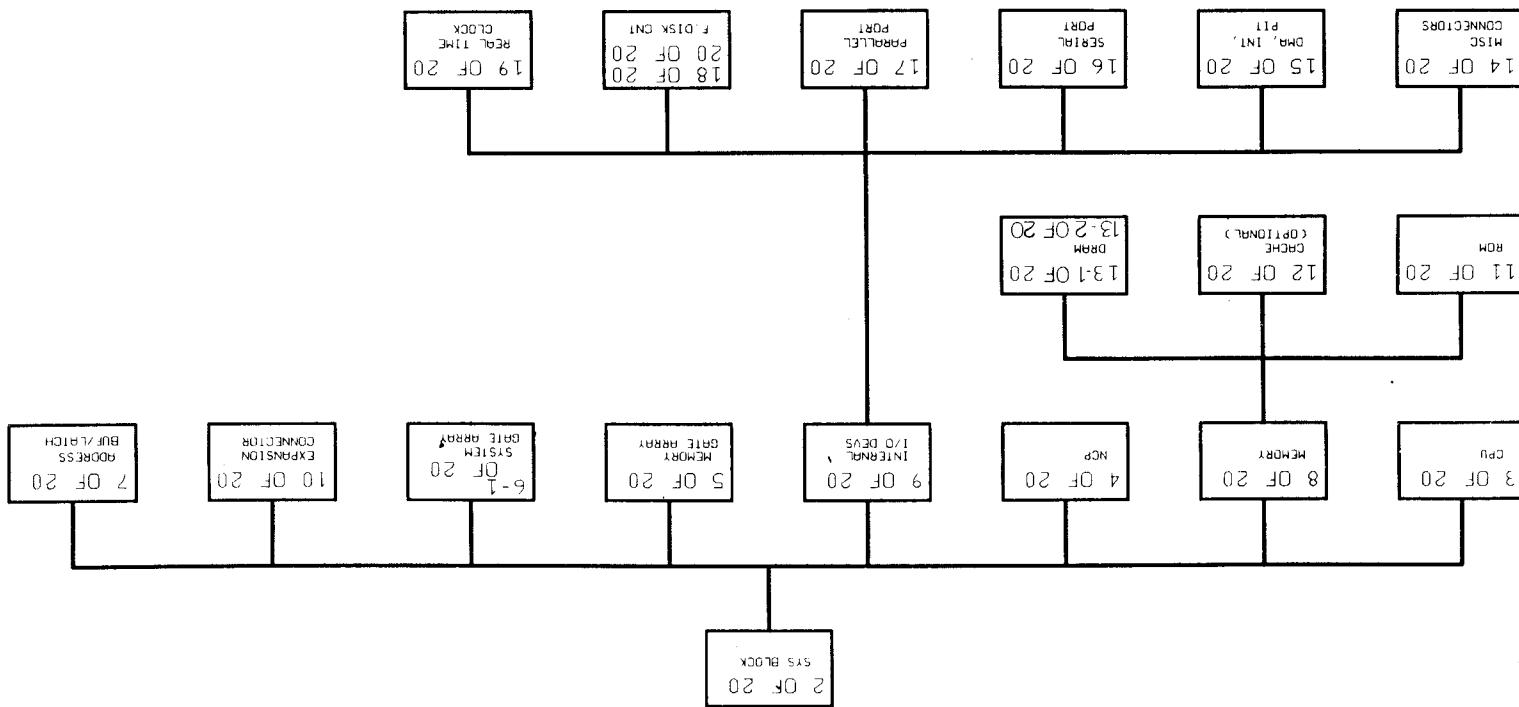
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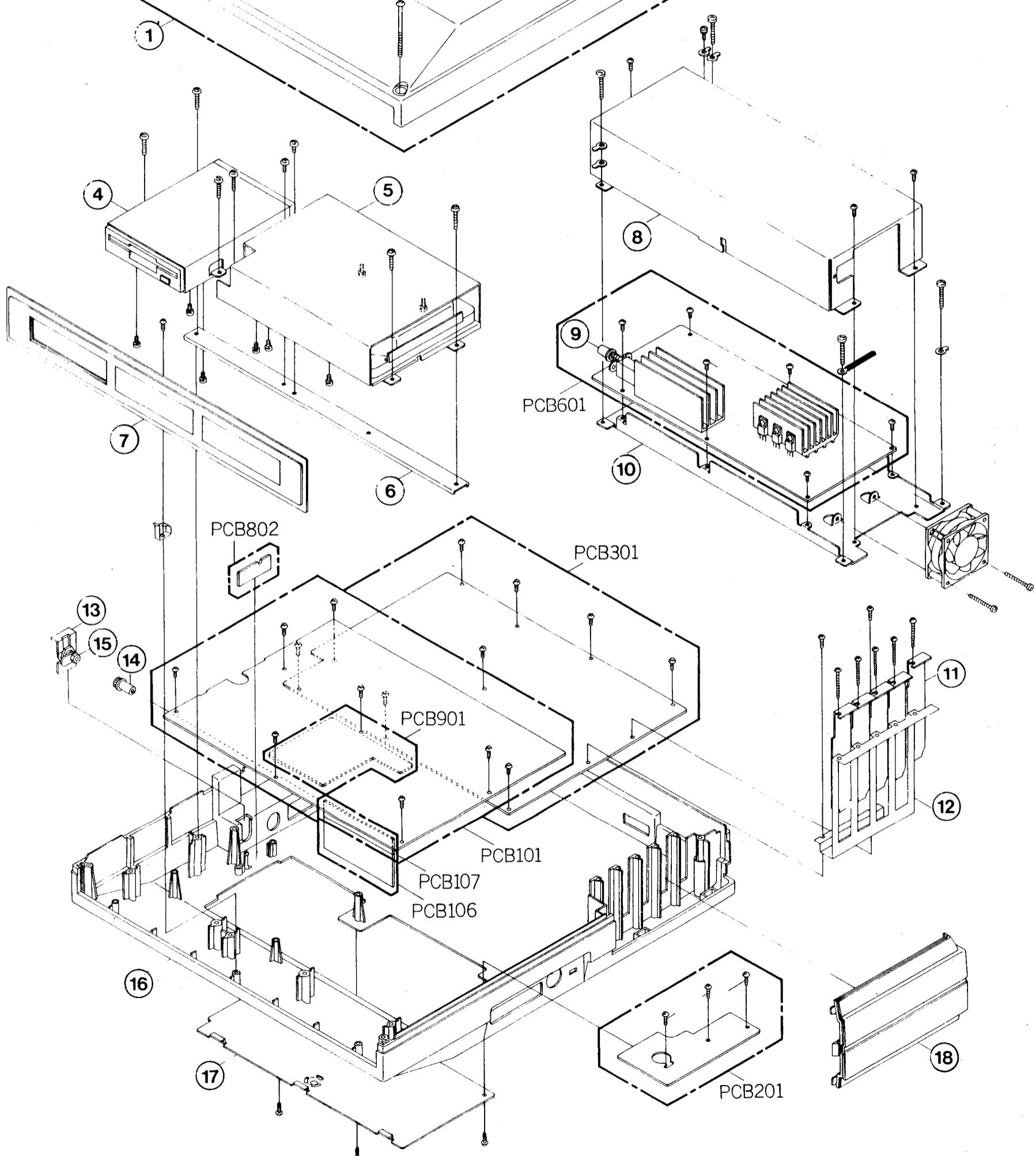
INTERCONNECTION DIAGRAM



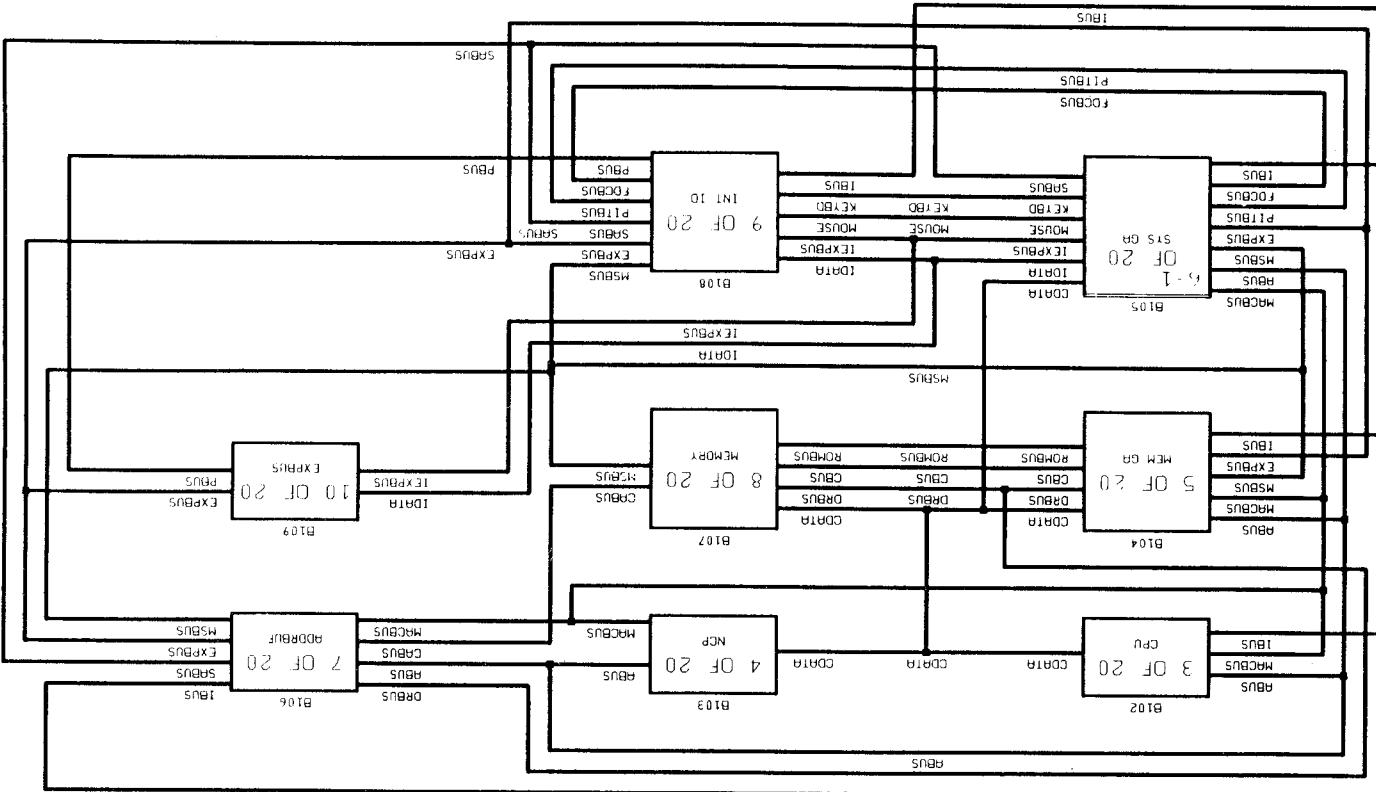
CABINET PARTS LIST

Ref.	Description	Part No.
1	Cabinet Top Assy	176601
2	Lid PCB	176602
3	Screw Cap	171363
4	Frame FDD	176603
5	Frame HDD	176604
6	Frame Fixing Metal	176605
7	Cabinet Top Assy	176606
8	Frame Power Top	176607
9	Button Push	176007
10	Frame Power Bottom	176608
11	Plate Expansion	176012
12	Plate Earth Expansion	176609
13	Bracket Key Switch	176610
14	Knob Volume	171362
15	Tubular Key Cam Lock	176021
16	Cabinet Bottom Assy	176611
17	Plate Bottom	176612
18	Lid Jack	176613
19	Cabinet Top Keyboard	176023
20	Plate Brand	176024
21	Cabinet Bottom Keyboard	176024
22	Sheet Rating	171358
23	Stand Keyboard	

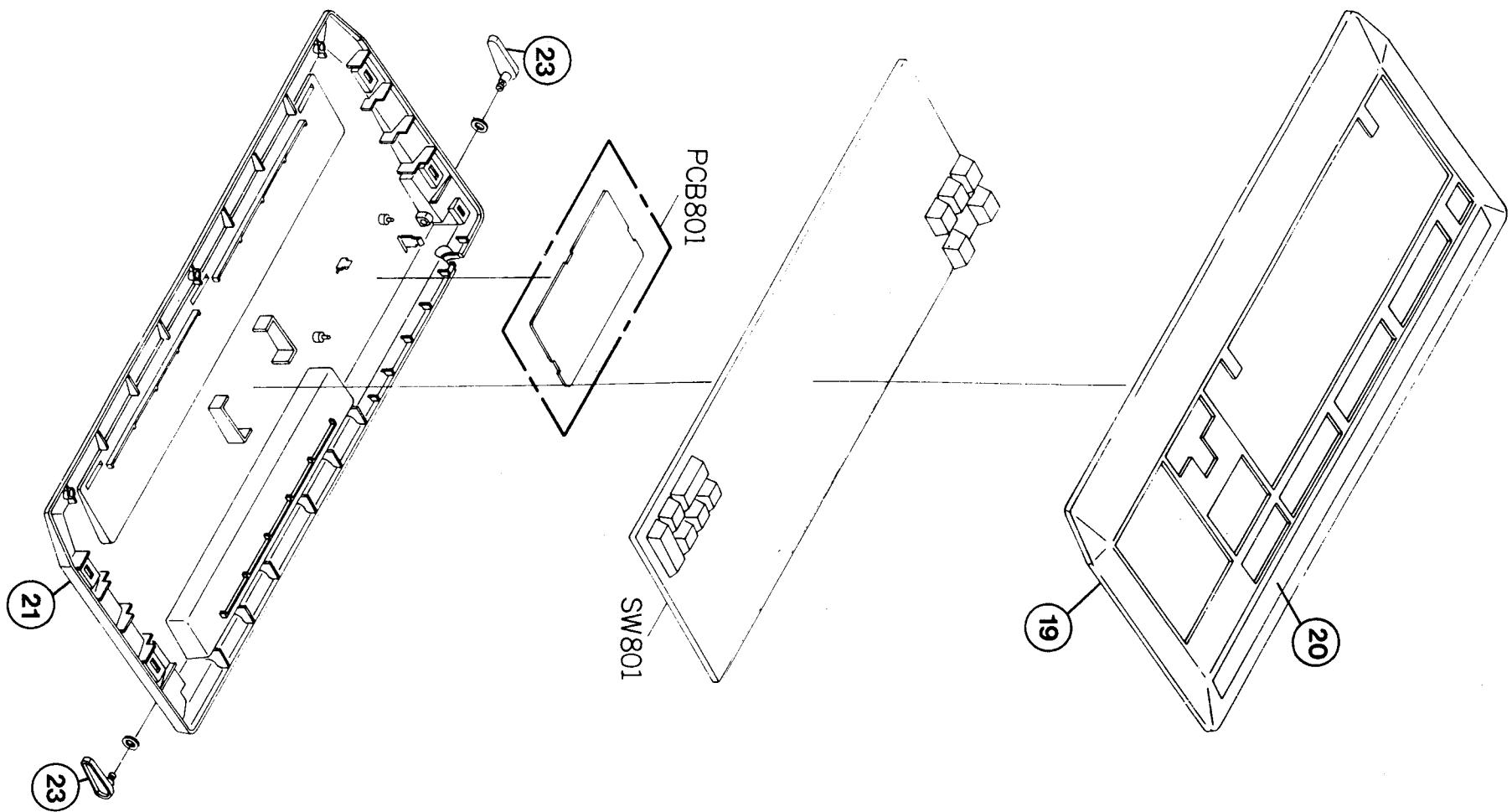
CABINET EXPLODED VIEW



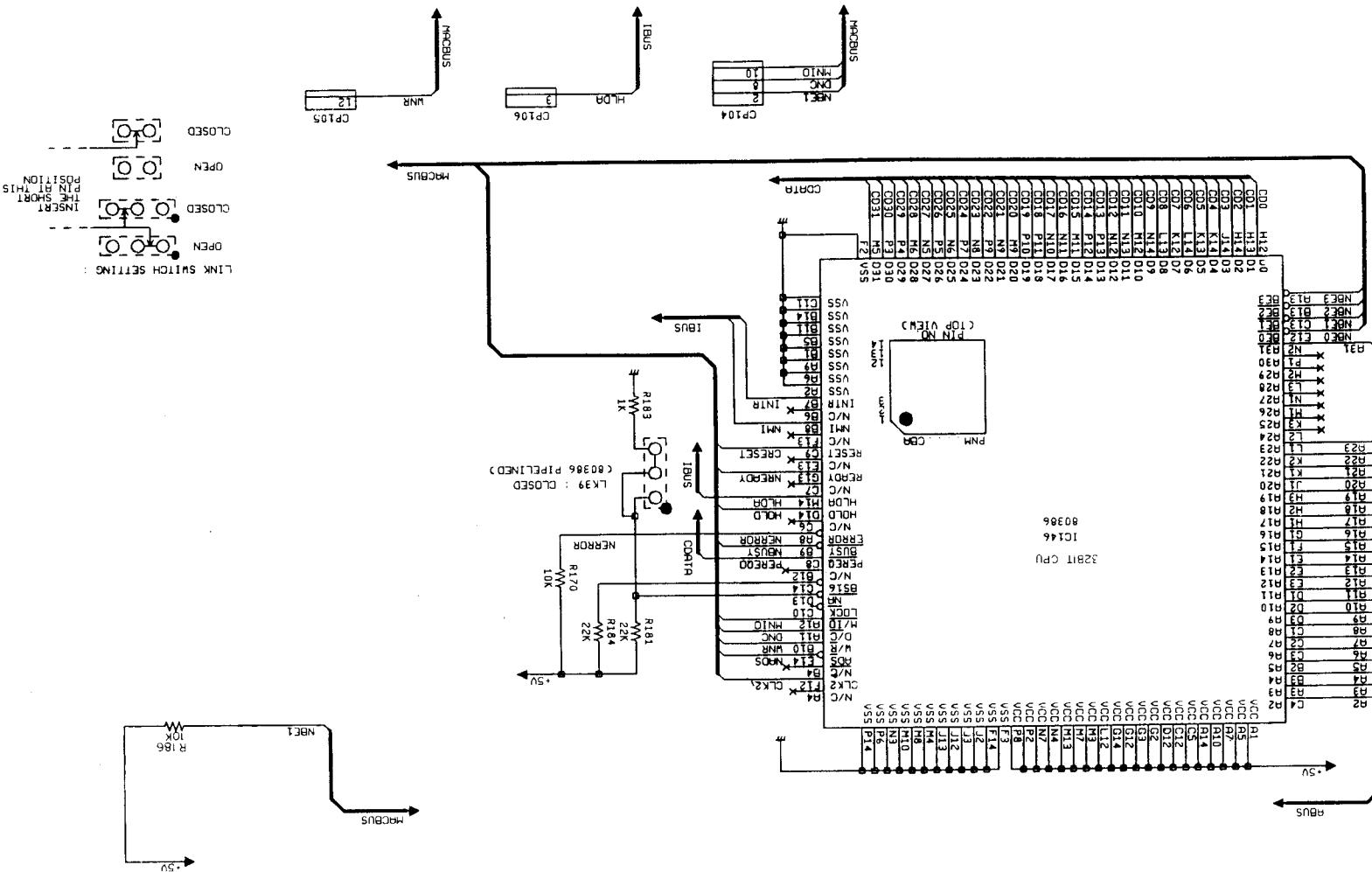
INTERCONNECTION DIAGRAM



KEYBOARD EXPLODED VIEW
(For Parts List please refer to Page 47.)



CHASSIS SCHEMATIC DIAGRAM



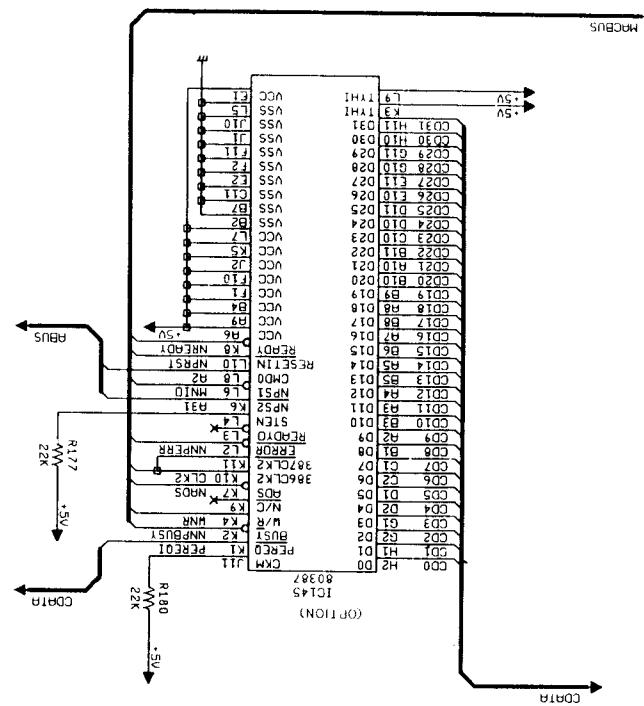
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ELECTRICAL PARTS LIST

Circ. Ref.	Description	Part No.
Transistors		
Q101, 104, 106, 801-803	TR KTA1015Y	170453
Q102, 103, 105, 301, 302, 606,	TR KTC1815Y	170447
616 Q303	TR 2SC1923Y	202201
Q601	TR 2SA1346-AC Compound TR.	176660
Q602	TR Photo TLP732 (LF2)	176087
Q603	TR Photo TLP741G (LF2)	176659
Q614	TR 2SB1135R	176661
Q615	TR 2SD1207-AE	170741
Q901-904	TR ZVP0106A	176662
Diodes		
D101-104, 304, 305, 620, 801, 802, 901, 902	D 1SS132T-77	171582
D105, 106	DZ GZA6.8V	175636
D301	LED SLP-155B	170866
D302	LED SLP-255B	176028
D303	D 1SV11A	176616
D601-604	D 20E10FA13	176039
D605, 606	DZ GZA51 Y BT	176617
D607, 608	D 1NU41 (LC6)	176618
D609, 615	D DFD05TG-BT	176035
D610	DZ GZA36 Y BT	176619
D611	DZ GZA5.6 Y BT	176033
G612, 621	D 1DL41 (TPA3)	176620
D614	D F10P20F	176621
D616	D 30 GWJ2C42	176622
D618	DZ GZA5.1 Y BT	176038
D619	DZ GZA5.6 Y BT	171499
Miscellaneous		
B101	Ferrite Bead	174058
B601-605	Ferrite Bead	176114
FDD201	Floppy Disc Drive OSDA-45A	176724
HDD201	Hard Disc Drive ST277R	176725
M601	Fan Motor	176732
NR101, 102	Resnet 4.7kΩ X8	176167
NR103, 104	Resnet 2.2kΩ X8	176166
NR801	Speaker	171370
SP401	Trimmer Capacitor 20pF	176171
TC101, 301	Thermistor Power	176733
TH602	Thermistor	176172
X101	XTAL 1.8432 MHz	176173
X102	XTAL 32.768kHz	176174
X103	XTAL 48.0MHz	176734
X104	XTAL 14.318MHz	176735
X105	XTAL 40.0MHz	176736
X301	XTAL 25.175MHz	176179
X302	XTAL 28.322MHz	176178
X303	XTAL 36.00MHz	176180
X304	XTAL 15.00MHz	176181
X801	XTAL 11.0MHz	173737
Description	Circ. Ref.	Part No.
Carbon Film Resistors (All 1/6W)		
100Ω	R659	152166
330Ω	R663	152172
470Ω	R654	152174
680Ω	R649, 650, 655	152176
820Ω	R664	152178
3.3kΩ	R660	152185
4.7kΩ	R608	152184
10kΩ	R607	152194
12kΩ	R605	152195
15kΩ	R666	152196
27kΩ	R606	152199
100kΩ	R657	152209
1MΩ	R611, 615	152223
Description	Circ. Ref.	Part No.
Carbon Film Resistors (All 1/4W)		
56Ω	R656	10024
47Ω	R626	10048
100Ω	R638, 648	10032
1kΩ	R633, 643, 644, 646, 658, 661	10061
5.6kΩ	R639	10079
10kΩ	R647	10085
15kΩ	R665	10121
330kΩ	R612	10130
820kΩ	R614	
Carbon Film Resistors (All 1/2W)		
100Ω	R667	176377
270Ω	R610	176748
2.7kΩ	R624	176749
4.7kΩ	R662	176750
Metal Oxide Resistors		
0.22Ω 1W	R635, 636	176745
100Ω 2W	R634	176744
560Ω 3W	R618	176743
1kΩ 2W	R617	176742
33kΩ 3W	R603	176740
68kΩ 2W	R601, 604	176738
Cement Resistors		
0.05Ω 5W	R640, 641	176746
0.22Ω 5W	R609	176741
Fuse Resistors		
4.7kΩ	R602	176739
Ceramic Capacitors		
470pF 2kV	C609	176751
820pF 500V	C626	176752
2200pF	C606	176304
4700pF 2kV	C608	176753
0.0015μF	C611, 616	24027
0.0022μF 500V	C612	1400223
0.0022μF 2kV	C624	176754
0.01μF	C603-605	171646
	C613, 618	176755
Electrolytic Capacitors		
1μF/50V	C617	20062
2.2μF/50V	C638	175114
3.3μF/50V	C607	176346
10μF/16V	C633	20037
10μF/25V	C621	20027
47μF/16V	C622	151640
47μF/25V	C610	176348
47μF/50V	C639	20028
100μF/10V	C632	20028
100μF/16V	C635, 636	176320
330μF/35V	C630	176321
330μF/63V	C623	176756
330μF/400V	C601	176757
1000μF/16V	C629, 640	1422158
3300μF/35V	C625	171655
6800μF/16V	C627, 628	176758
Polyester Capacitors		
0.033μF	C631, 634	176311
0.1μF	C614, 615	175899
Metal Plastic Capacitors		
0.1μF 250V AC	C602	171658

CHASSIS SCHEMATIC DIAGRAM

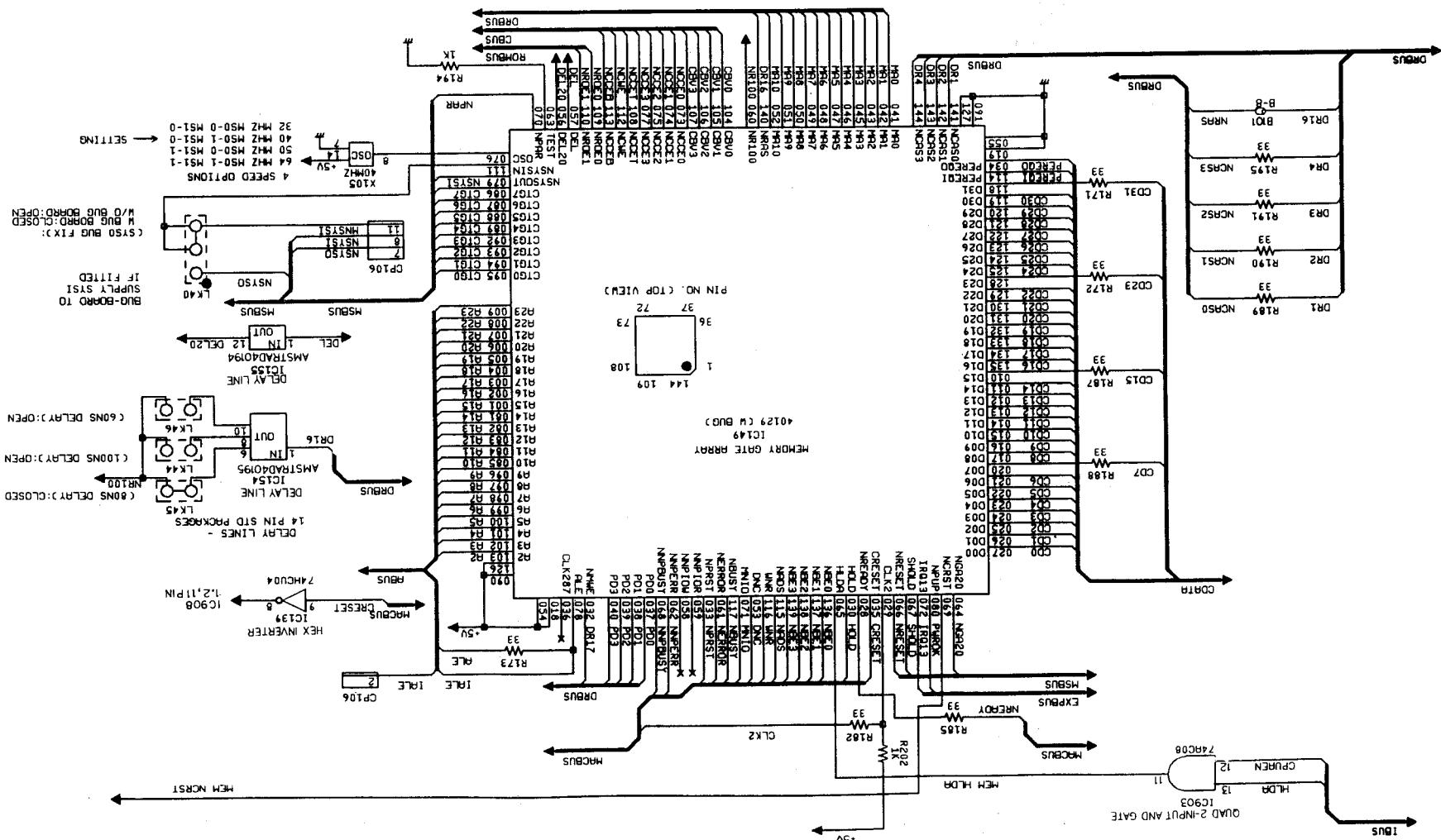
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ELECTRICAL PARTS LIST

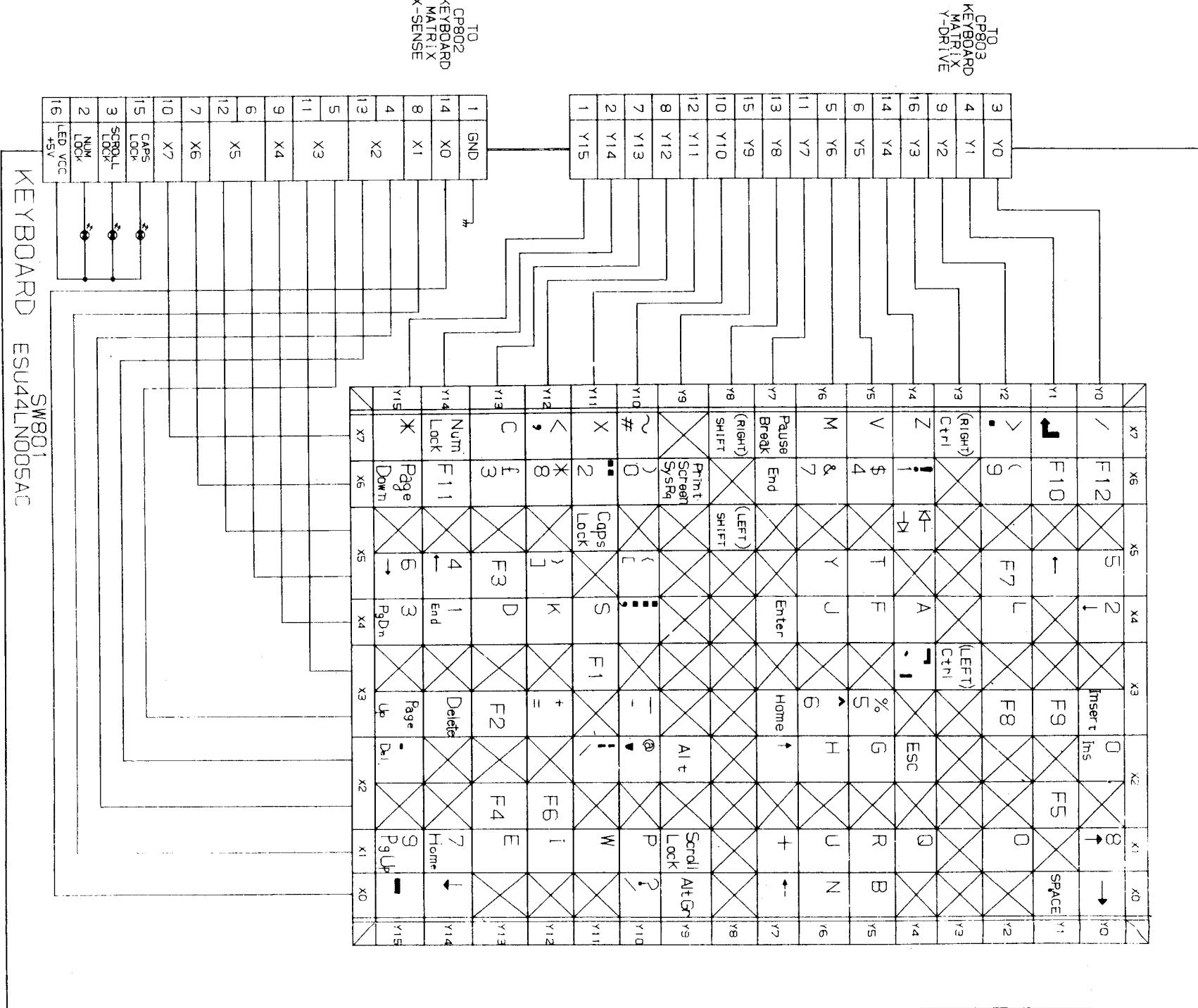
Circ. Ref.		Description	Part No.	Circ. Ref.	Description	Part No.
PCBs				IC's		
PCB101	PCB MC0076 Main PCB	176674	IC KMA1C1000-10	IC001-009	IC KMA1C1000-10	176623
PCB106	PCB MC0086 Memory PCB	176675	IC AMS0187	IC101	IC AMS0187	40187
PCB107	PCB MC0087 Memory PCB	176676	IC DN74LS175	IC102	IC DN74LS175	176085
PCB201	PCB MS0142 F.D.	176677	IC DN74LS138	IC103, 108, 113	IC DN74LS138	176624
PCB301	Expansion PCB		IC DN74LS125A	IC104, 140	IC DN74LS125A	176625
PCB302	PCB MC0075 Expansion PCB	176678	IC105	IC105	IC DN74LS08	176626
PCB303	PCB MS0146 LED PCB	176679	IC106, 107	IC106, 107	IC SN7438	176627
PCB601	PCB MS0147 LED PCB	176680	IC109, 110, 117,	IC109, 110, 117,	IC DN74LS14	171389
PCB801	PCB MP001 Power Supply PCB	176681	142, 333	142, 333		
PCB802	PCB MK0006 KBD PCB	176682	IC112	IC112	IC SED9420CAC	171034
PCB901	PCB MS0143 Lock Key PCB	176683	IC114	IC114	IC MC146818P	40188
Jacks	PCB MS0140 Debug PCB	176684	IC115	IC115	IC MC146818P	176063
JD102	Socket DIN	176669	IC116, 130, 131,	130, 134, 137,	IC DN74LS244	171383
JD202	Jack DIN	176160	309	309	IC DN74LS374	176628
Switches			IC's			
SW102	Switch Puch ESE-153A	176100	IC119	IC HD74AC08P	174031	
SW201	Switch Slide 22DP	176101	IC120	IC ZT65APS	176048	
SW301	Switch Dip	176670	IC121, 123-127,	IC DN74LS245	171393	
SW601	Switch Puch Power	176102	308, 310	IC122	IC DN74LS148	
SW801	Switch Keyboard	176671	IC128	IC DN74LS240		
Variable Resistors			IC's			
VR401	VROT 20k Volume Control	176104	IC132	IC AMS040130	40130	
VR601	VRSF 100kΩ	176672	IC135	IC HD7406P	176042	
VR603, 604, 606	VRSF 1kΩ	176673	IC136	IC DN74LS174	176631	
Coils			IC's			
L301	Coil 4.7mH	176663	IC138	IC DN74LS245		
L302	Coil 1.2uH	176664	IC139	IC MN74HCU04		
L303	Coil 10uH	176665	IC141	IC DN74LS05		
L601	Coil Line Filter	176666	IC146	IC AMS386		
L602	Coil 020F000003	176693	IC149	IC AMS040129		
T601	Transformer Switching 8142022	176667	IC151-153	IC UPD421000LA-10*9PCS		

CHASSIS SCHEMATIC DIAGRAM

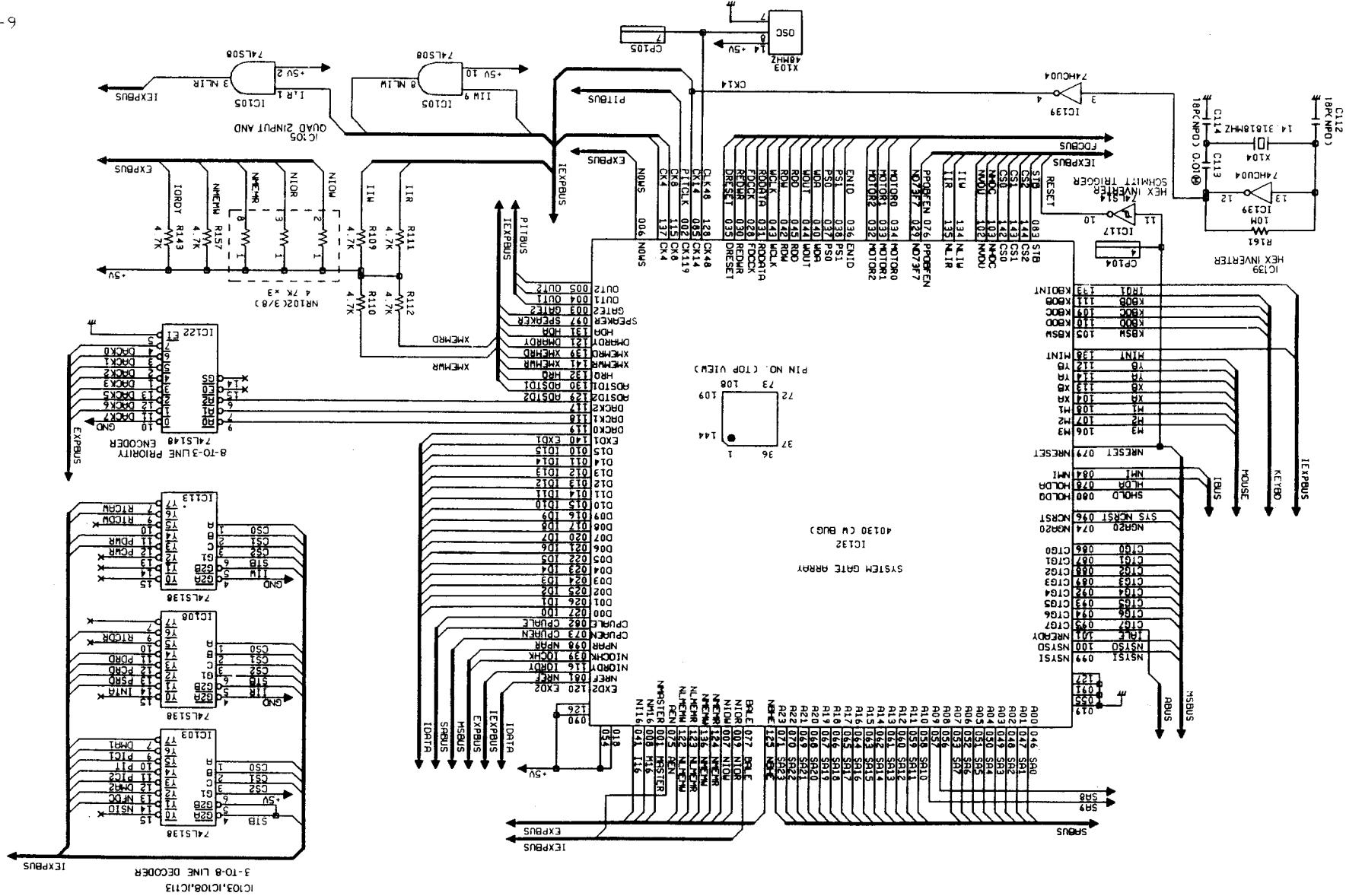


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KEYBOARD CHASSIS SCHEMATIC DIAGRAM



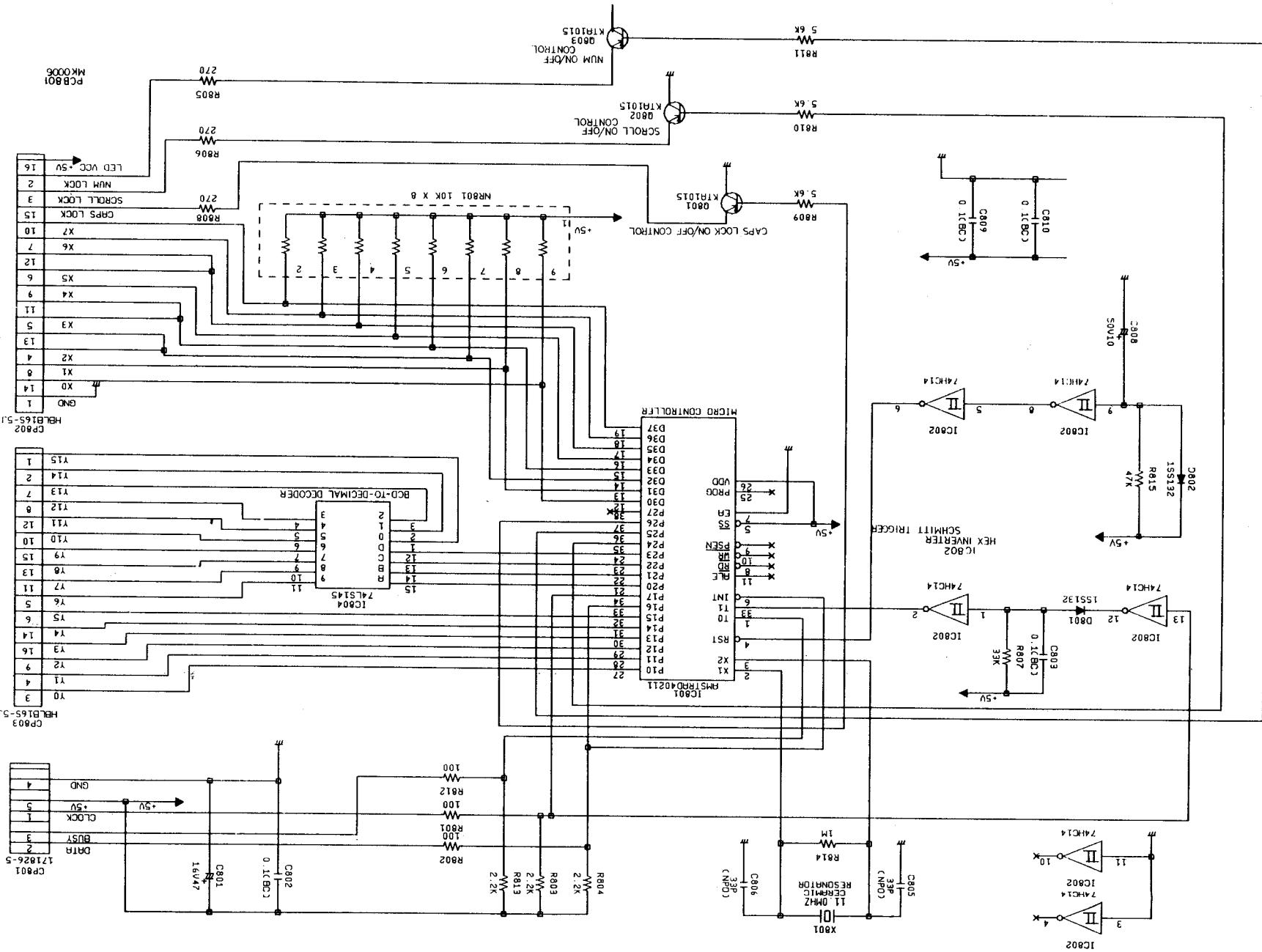
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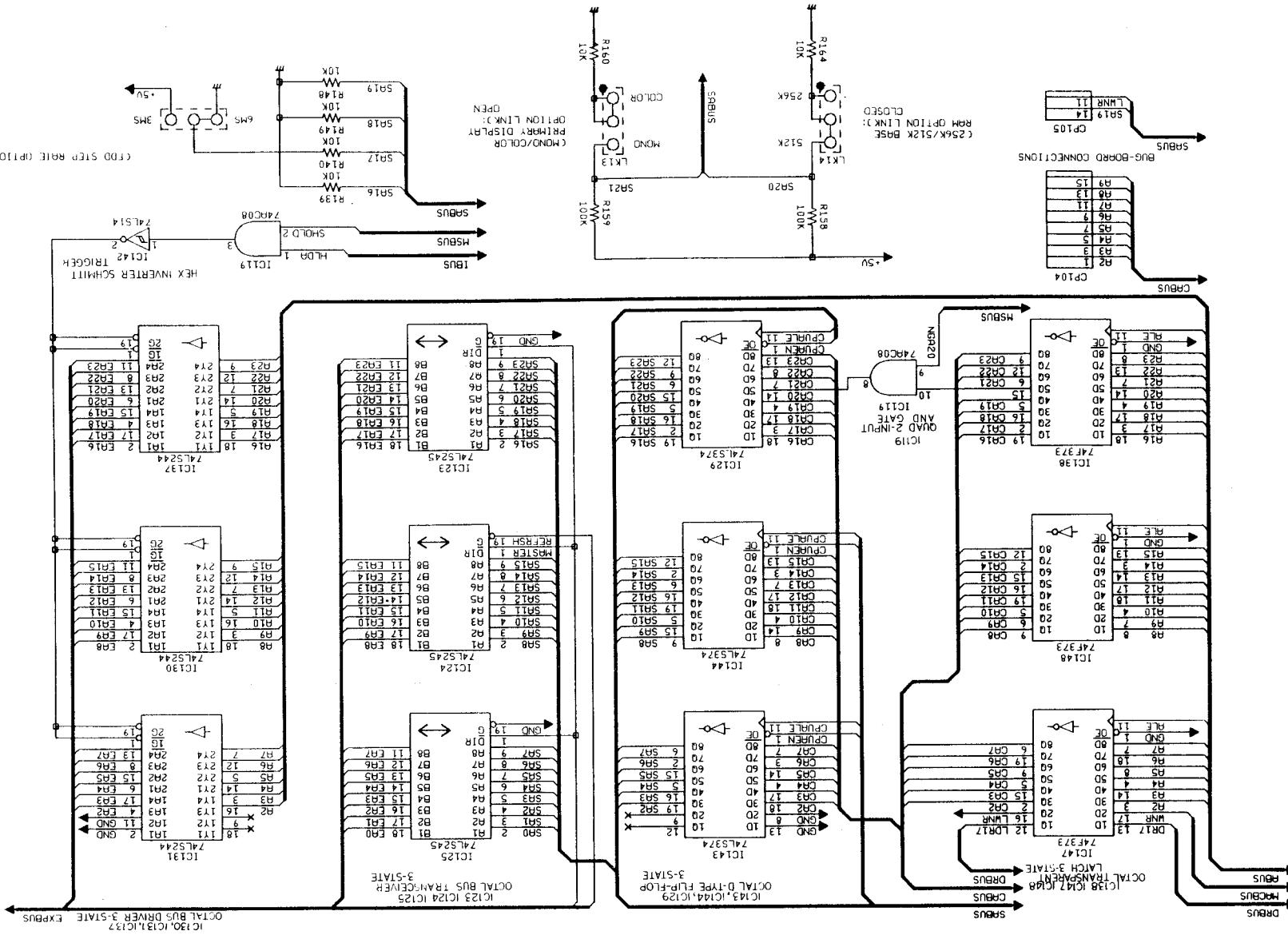
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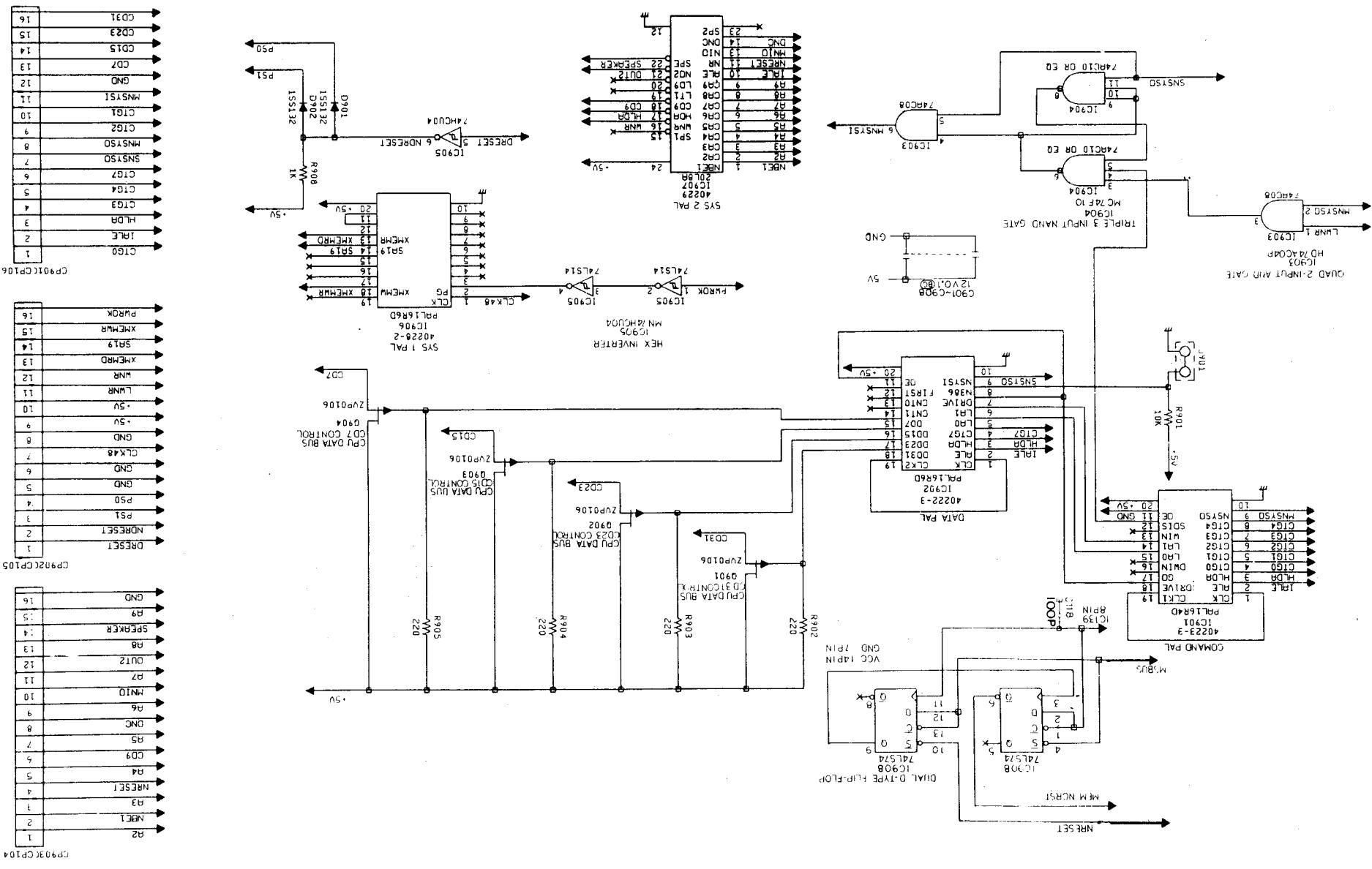


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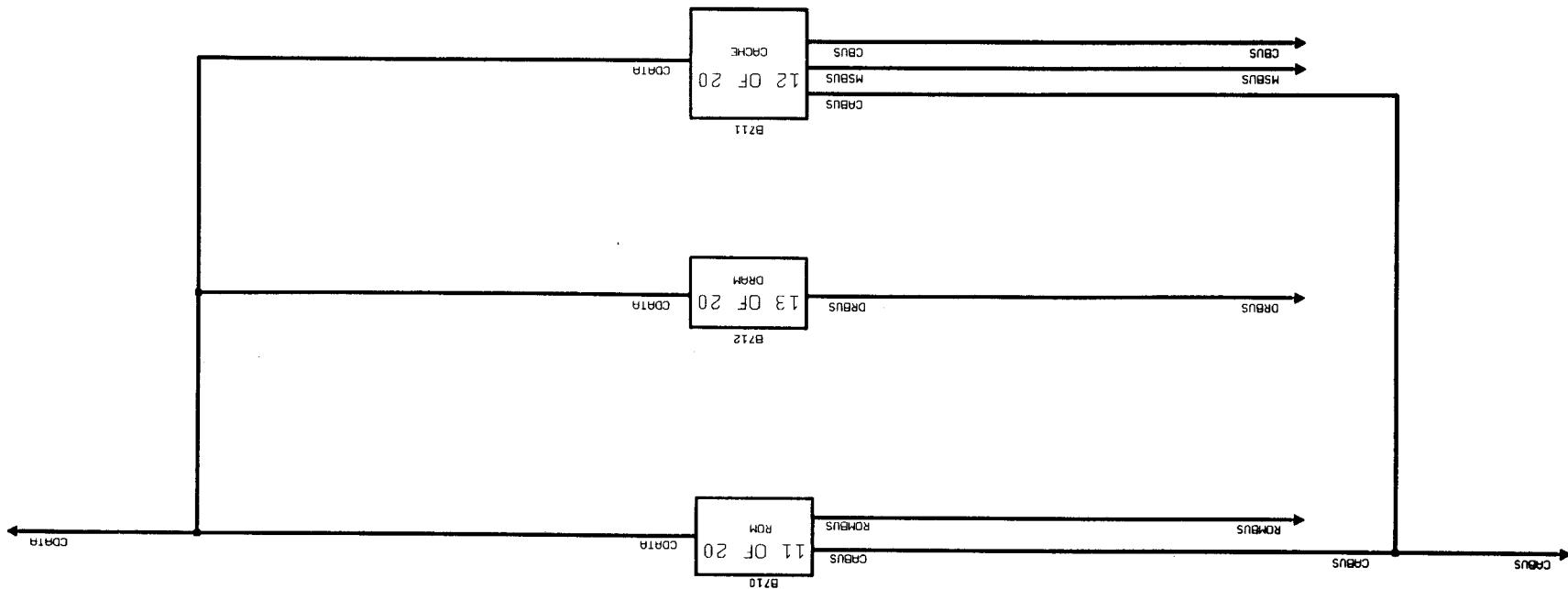
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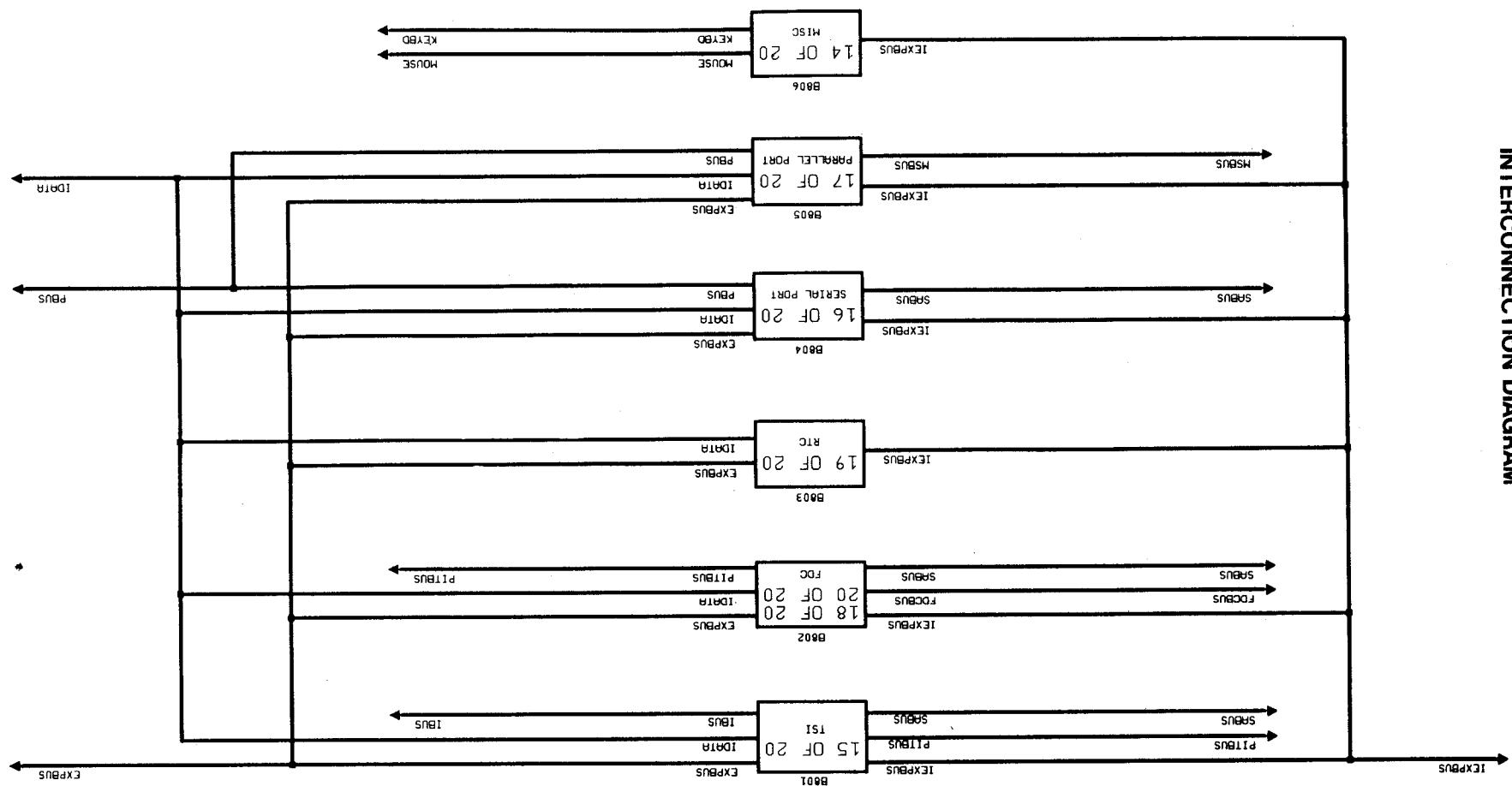
2 OF 2



INTERCONNECTION DIAGRAM

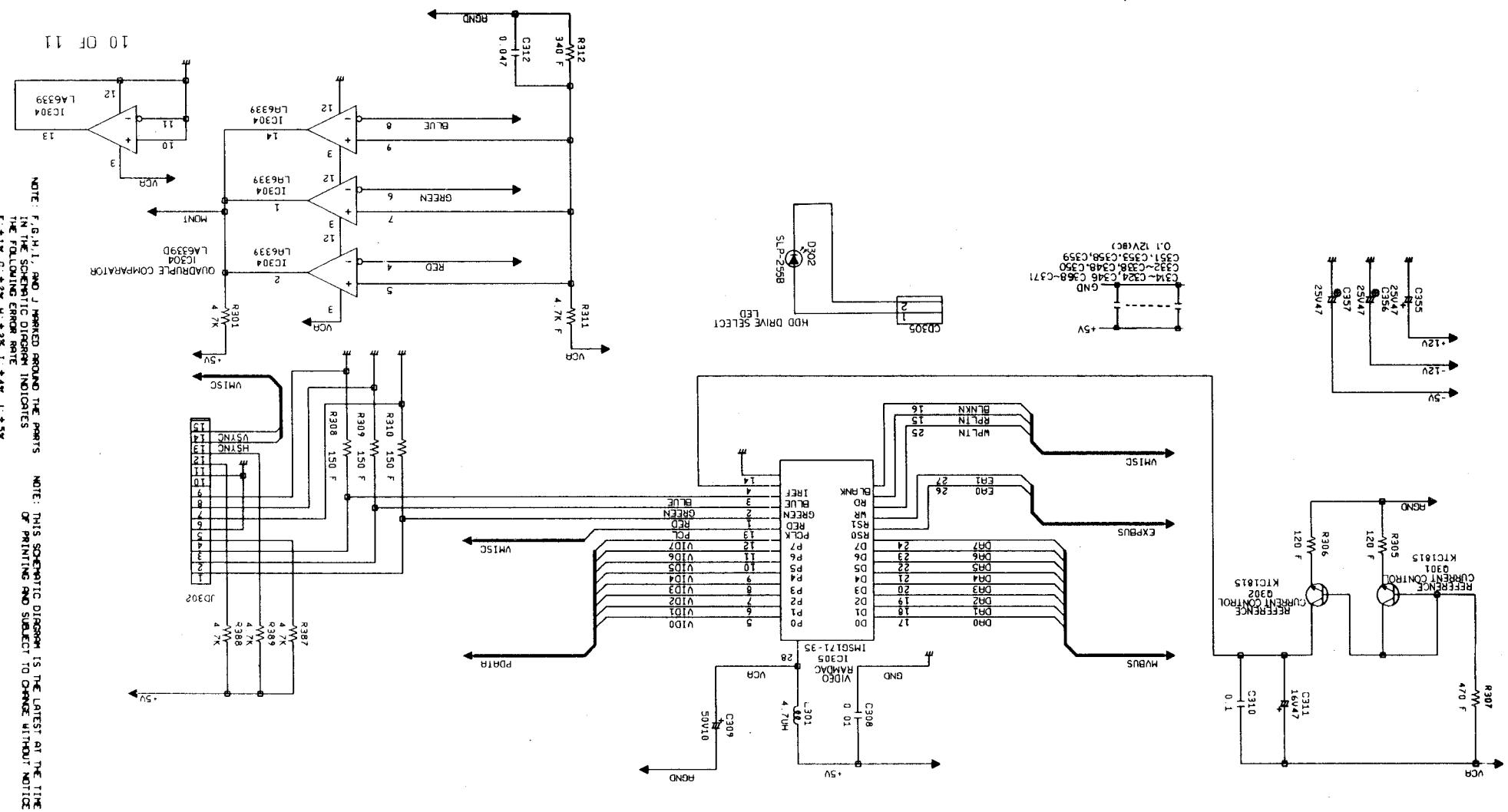


INTERCONNECTION DIAGRAM

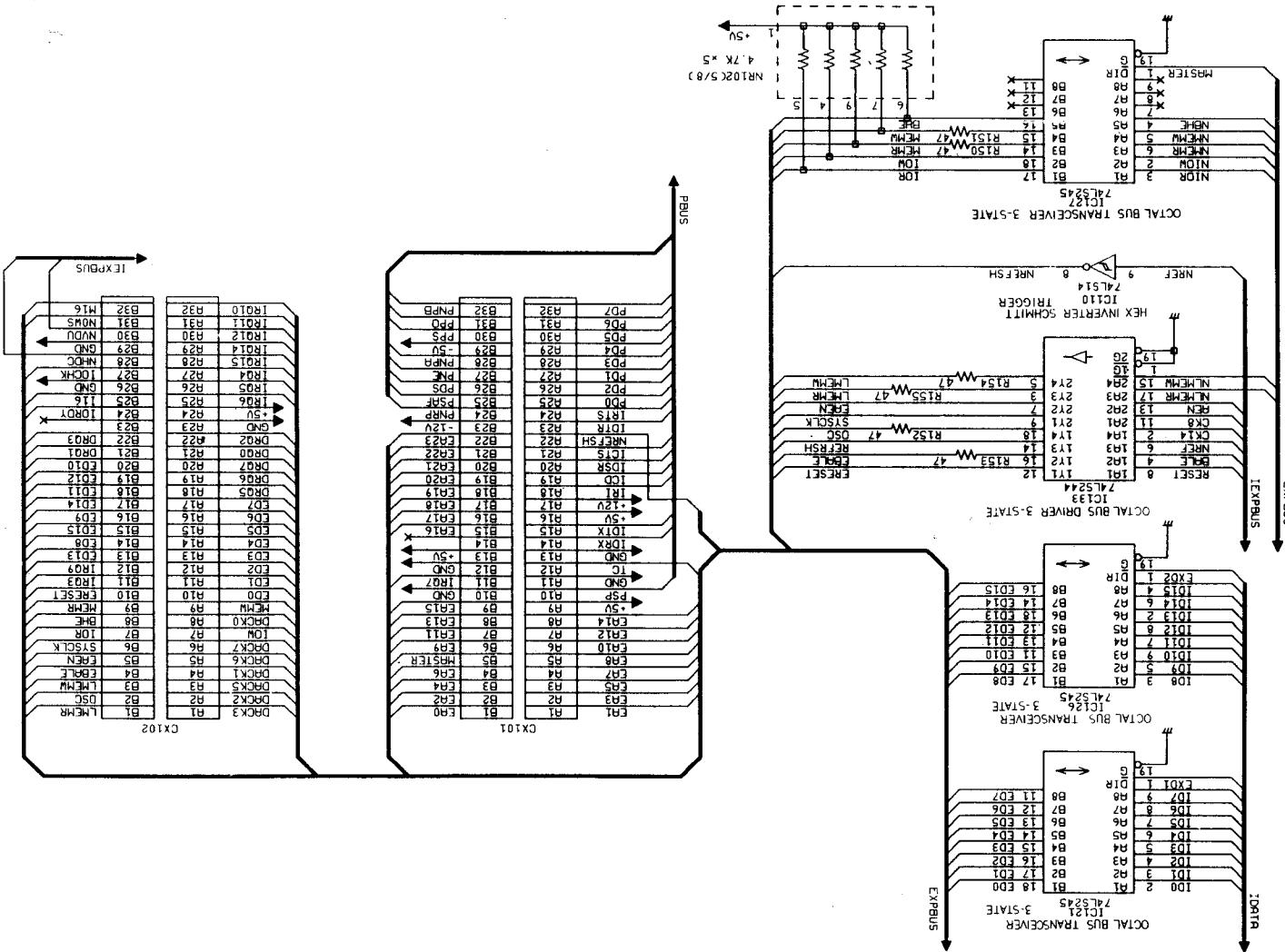


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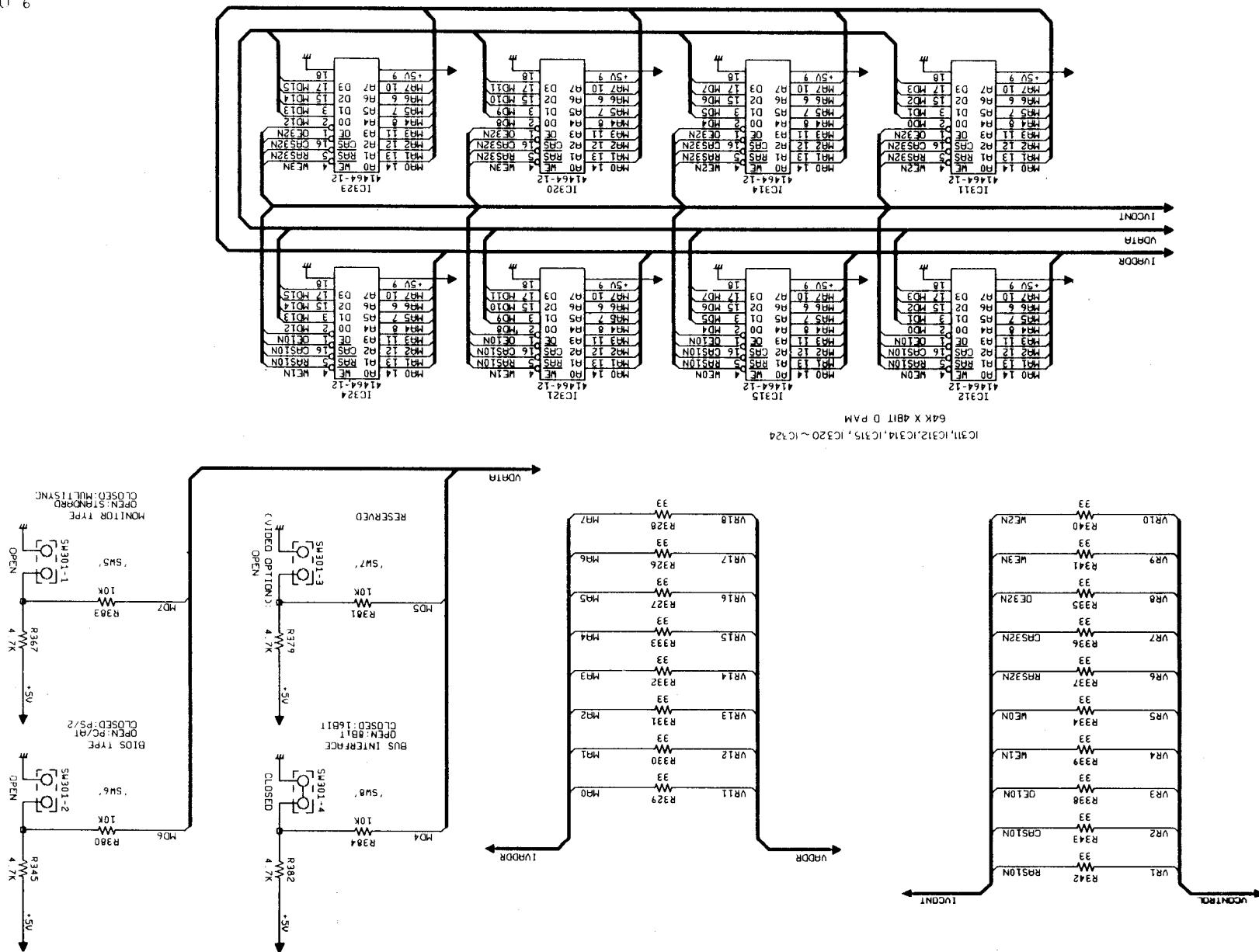


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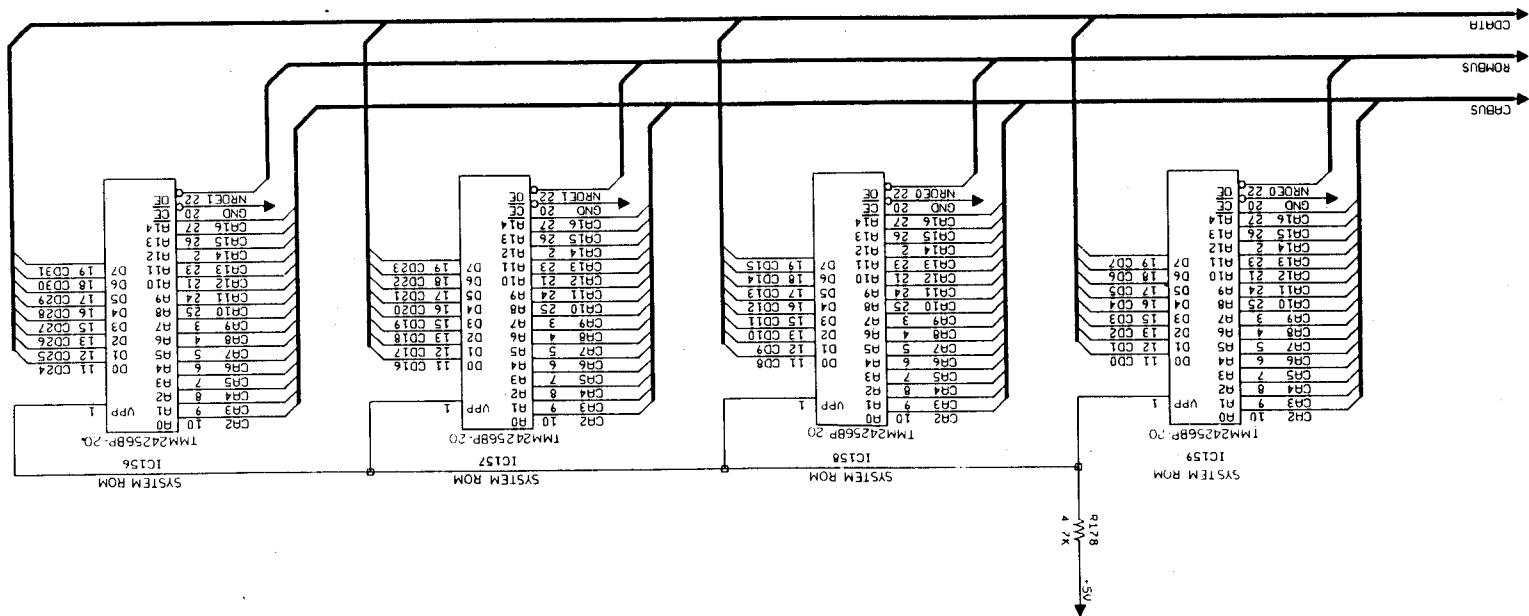
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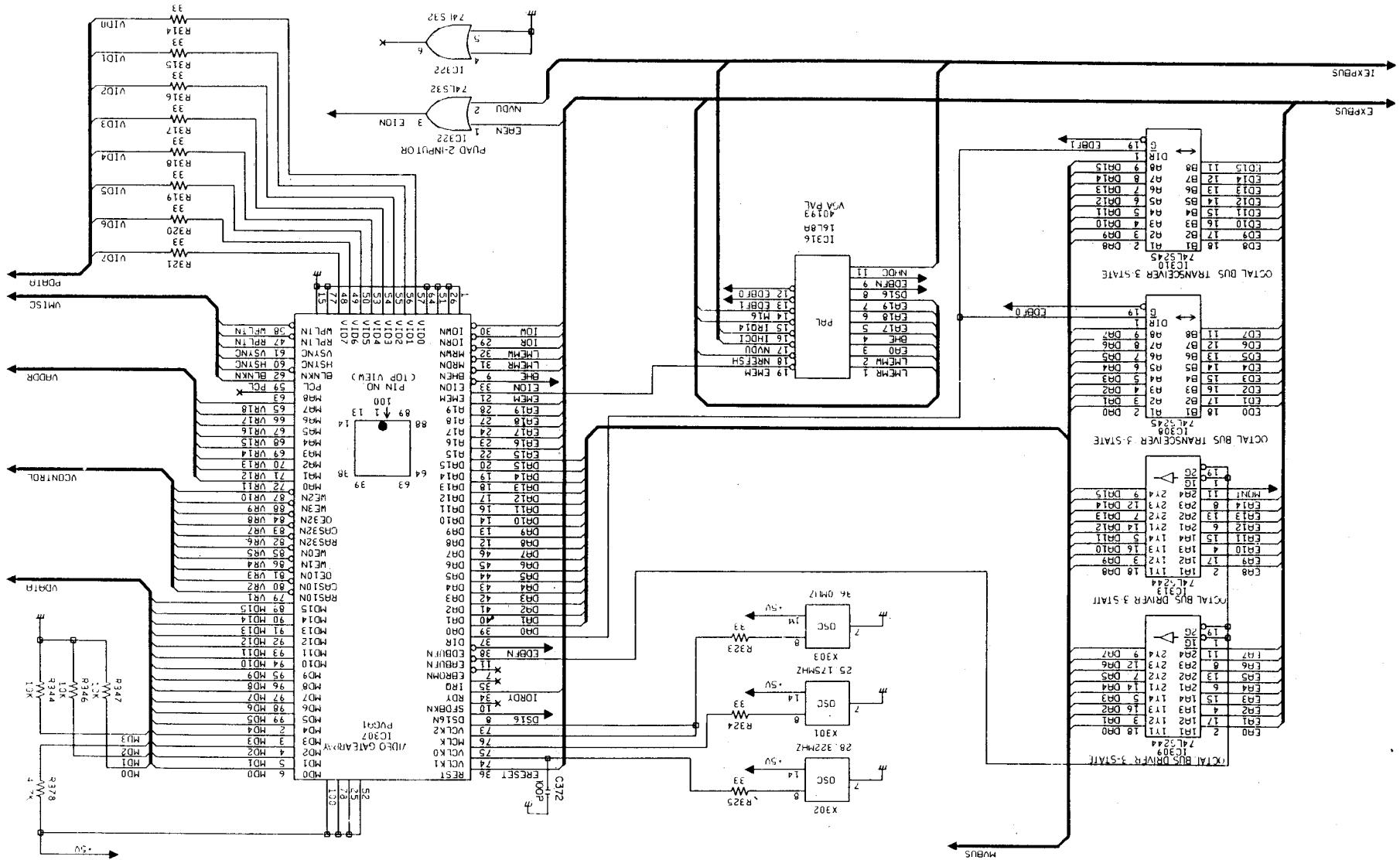
CHASSIS SCHEMATIC DIAGRAM



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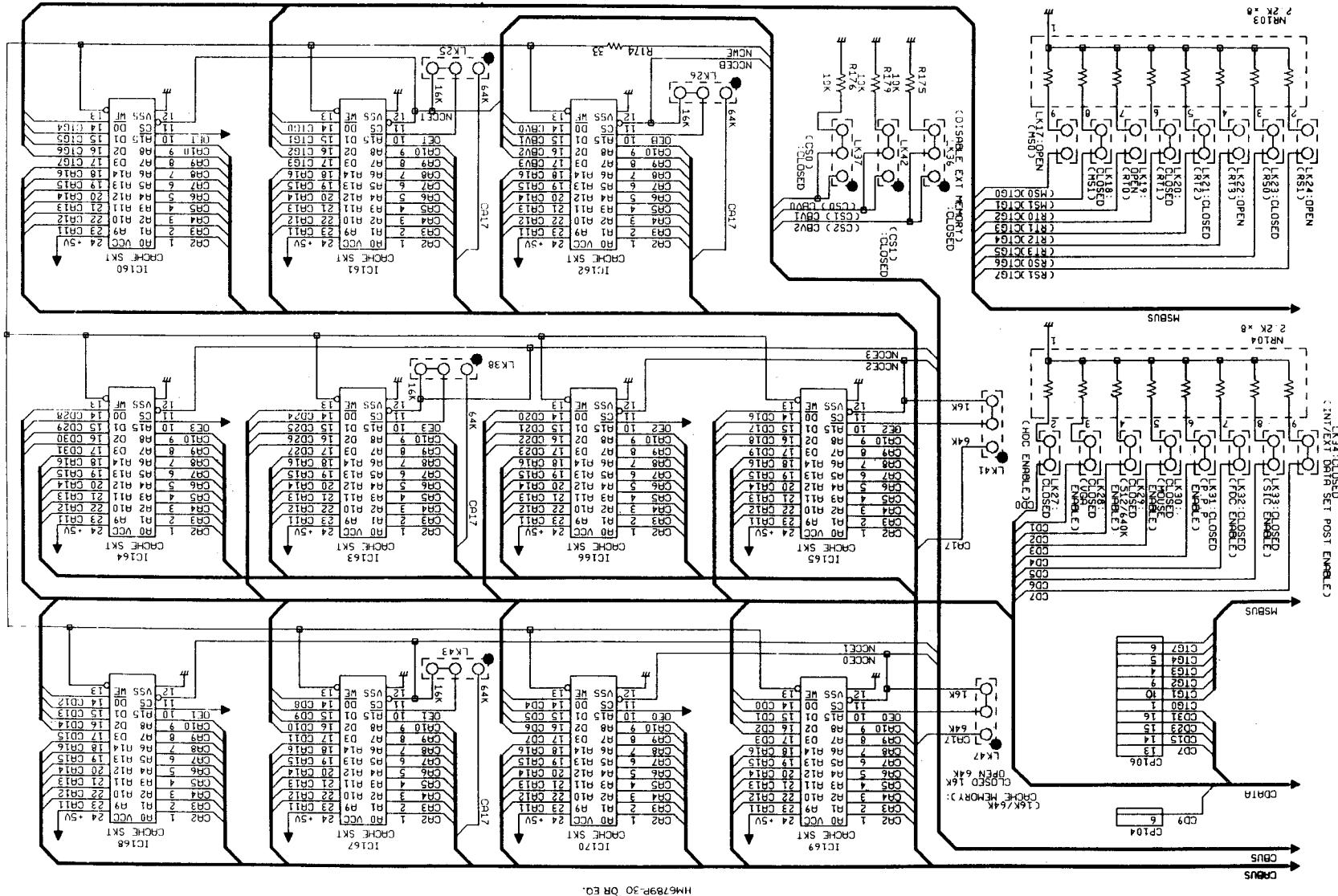
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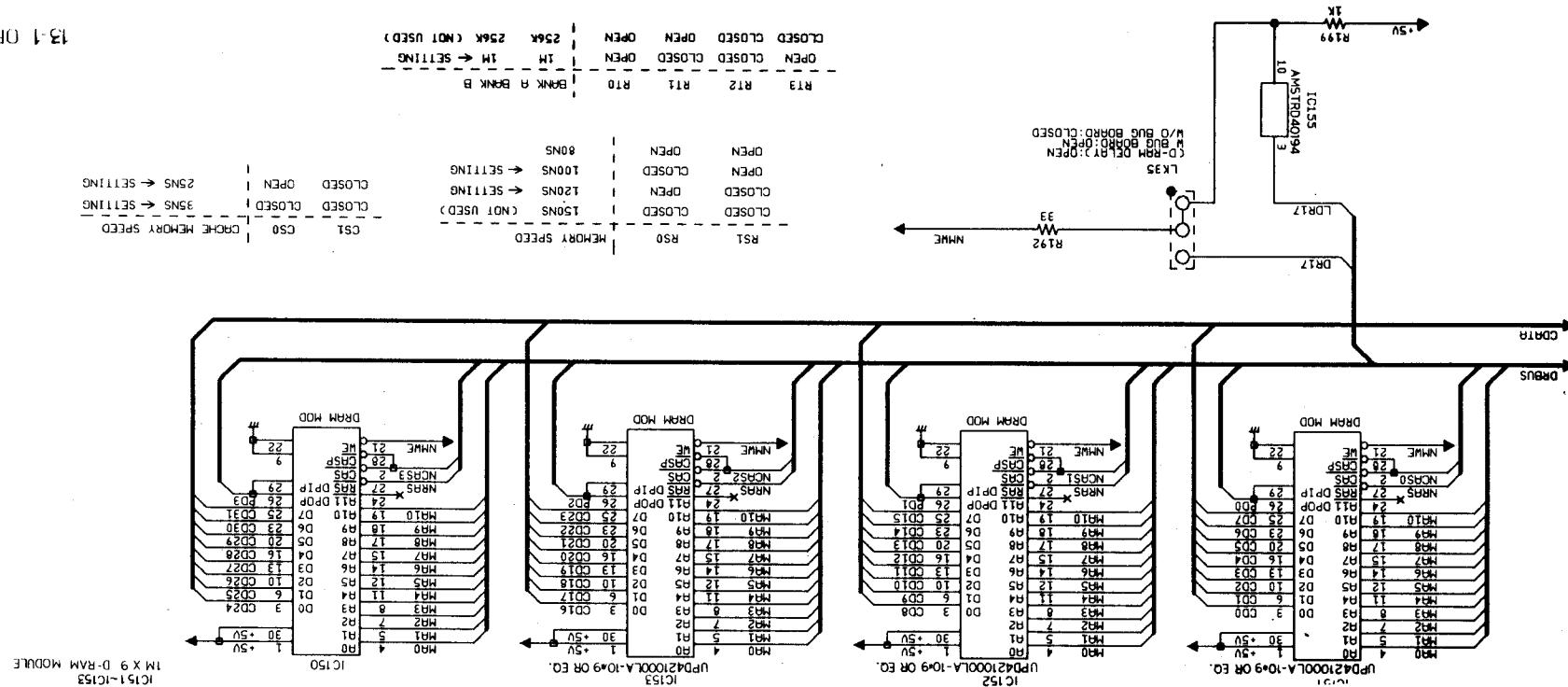
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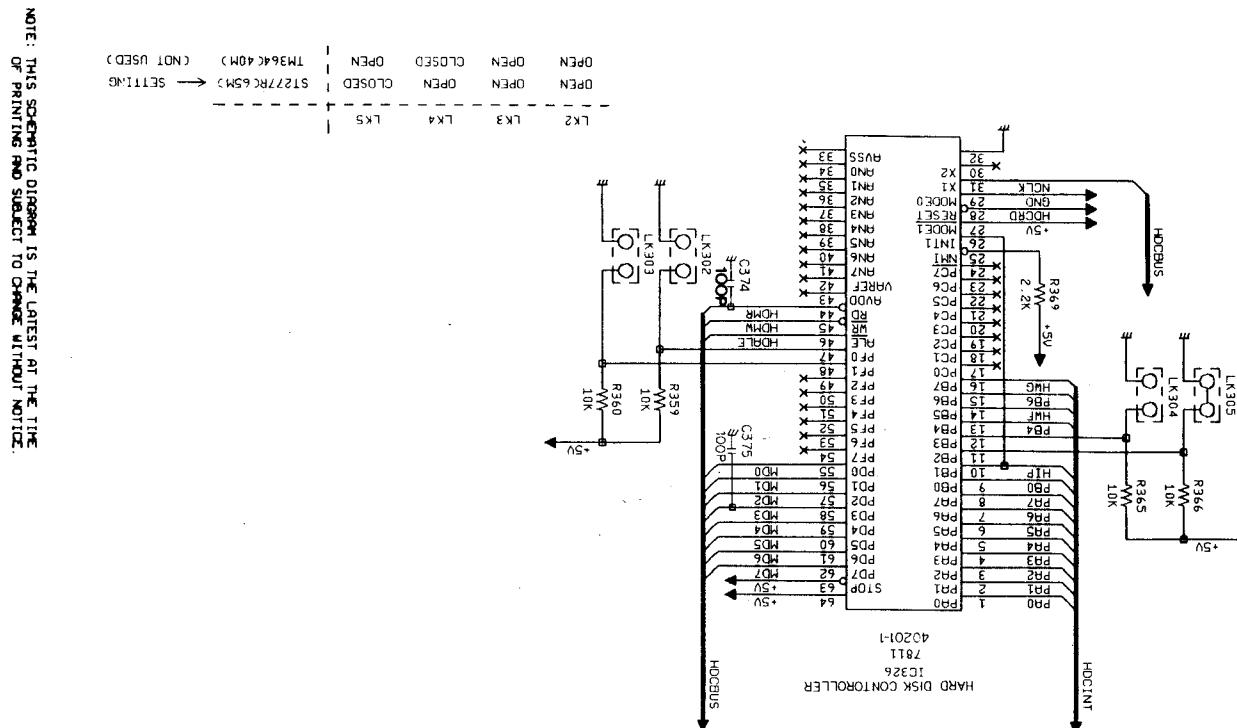


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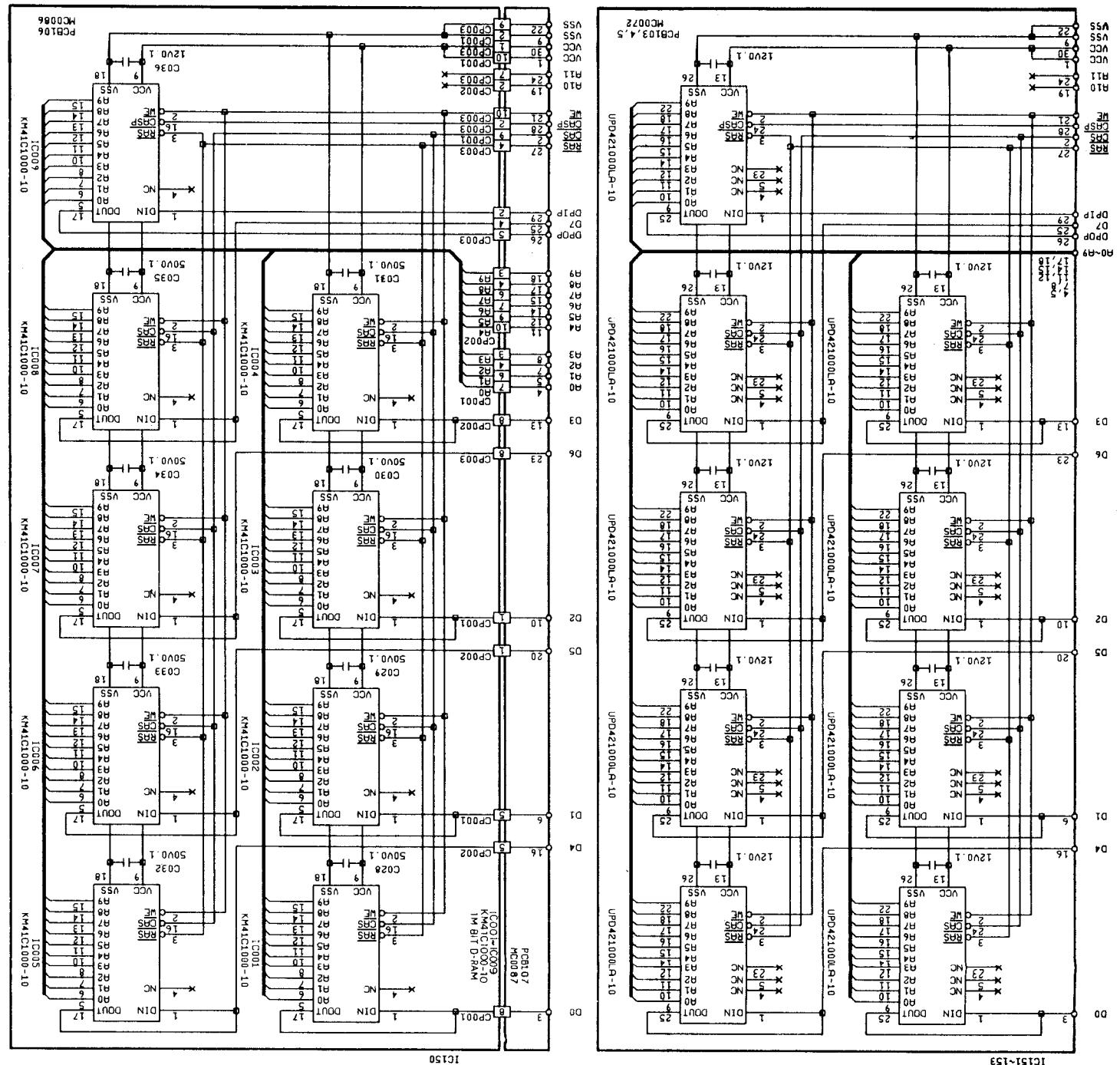


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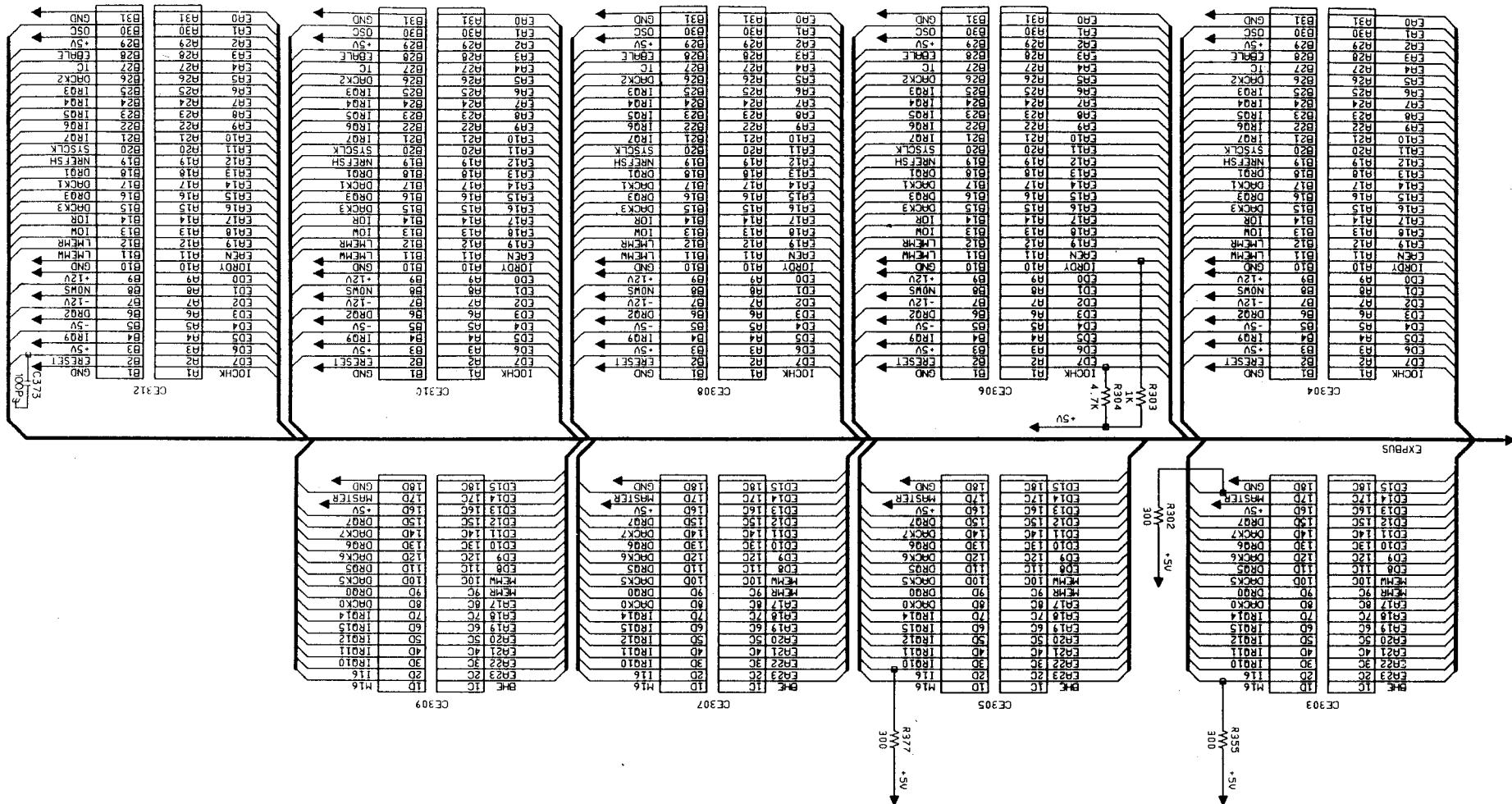


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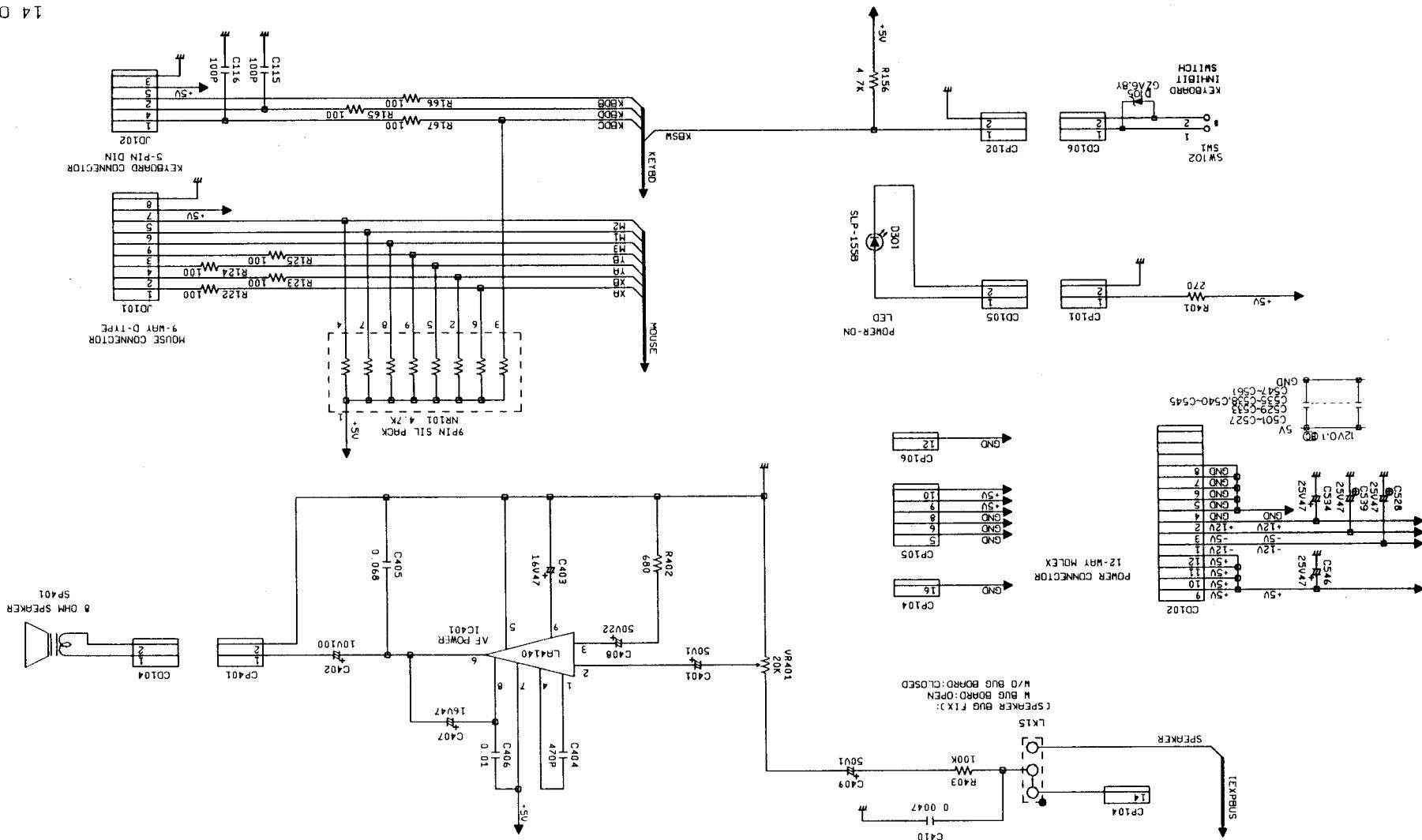
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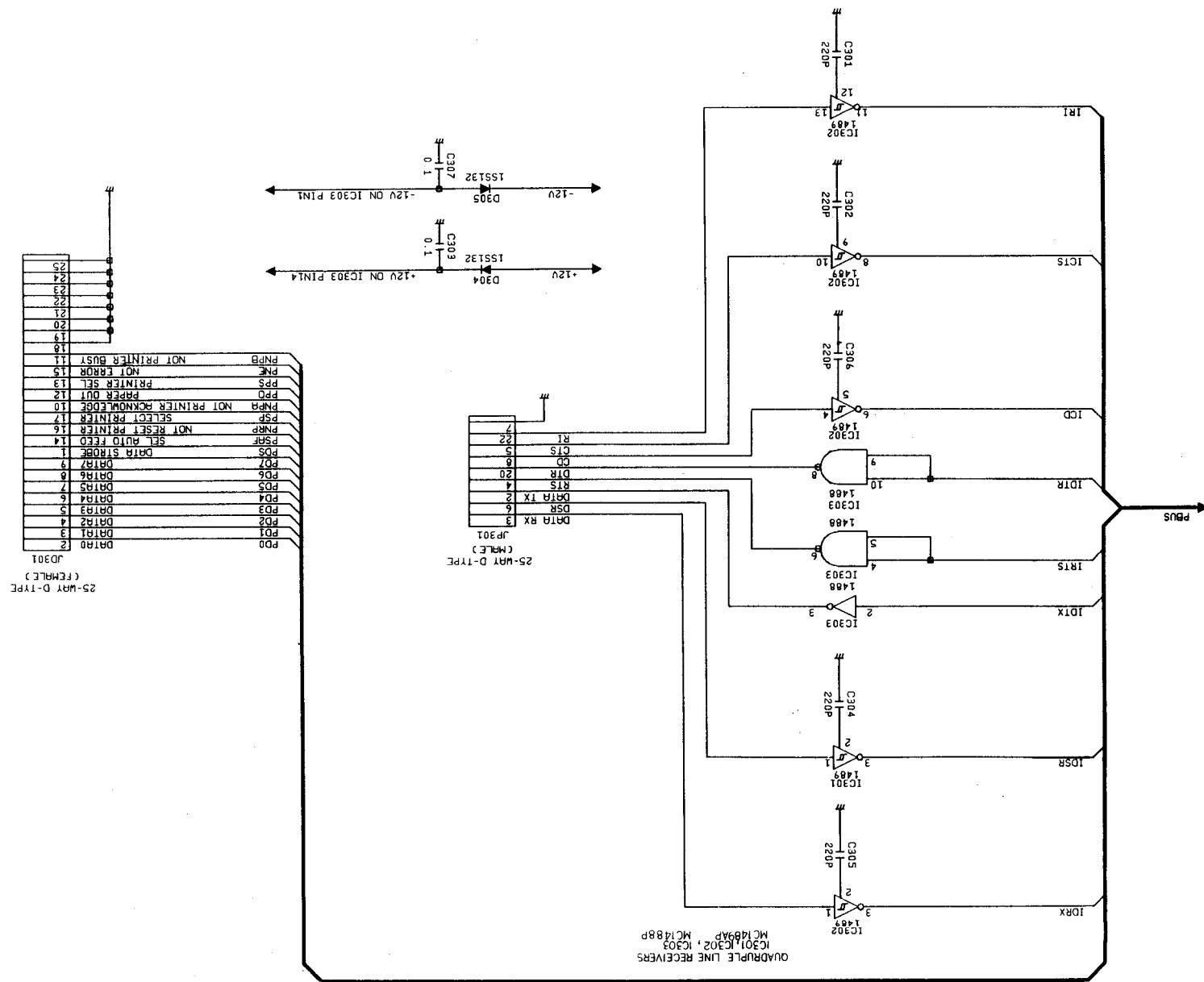
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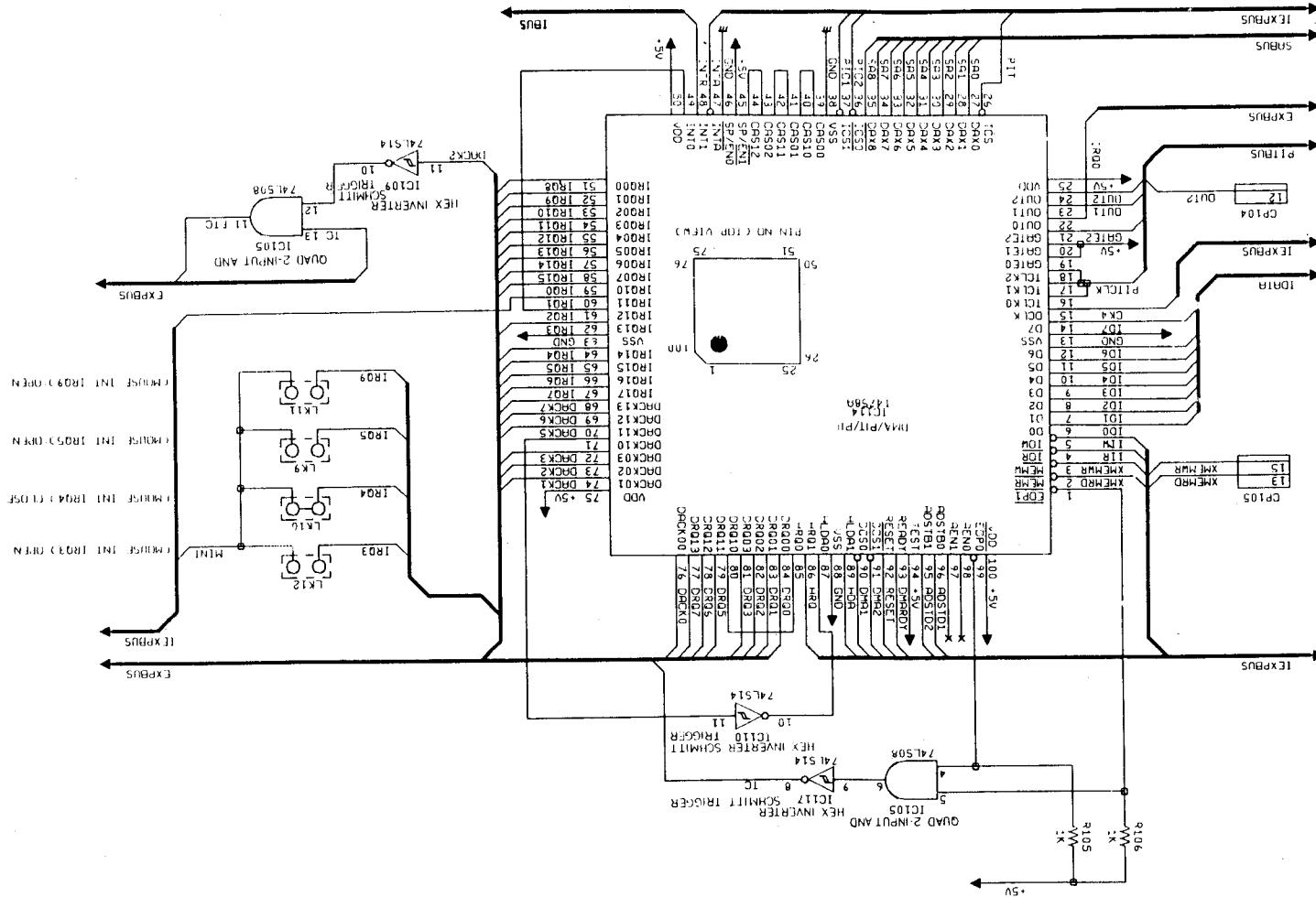
CHASSIS SCHEMATIC DIAGRAM



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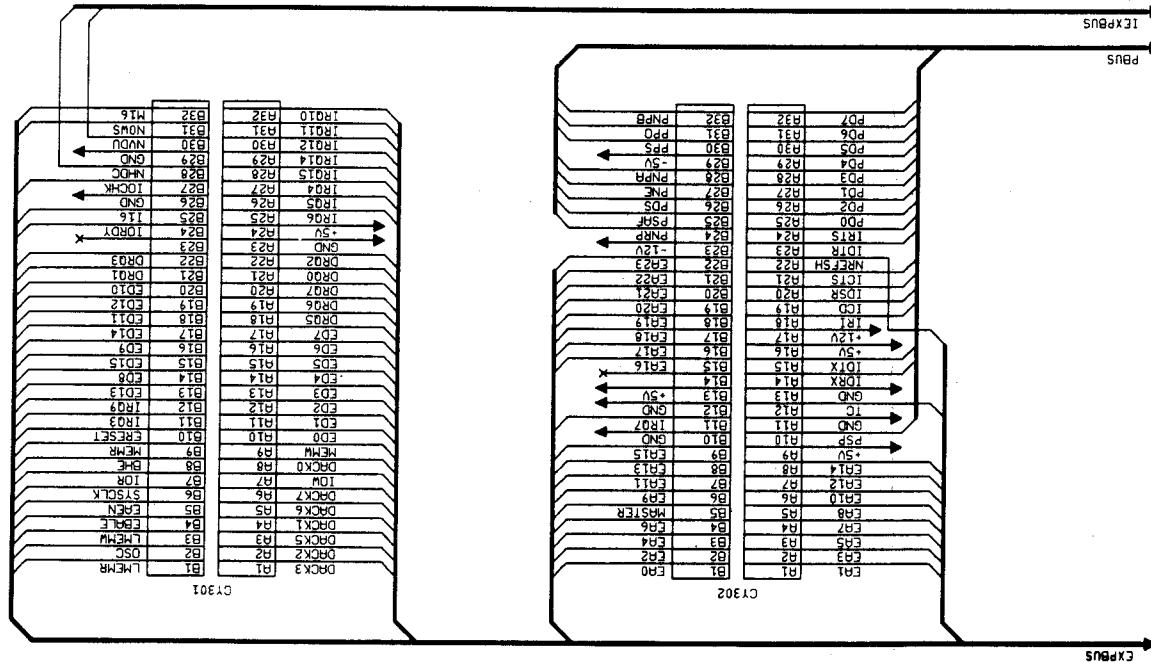
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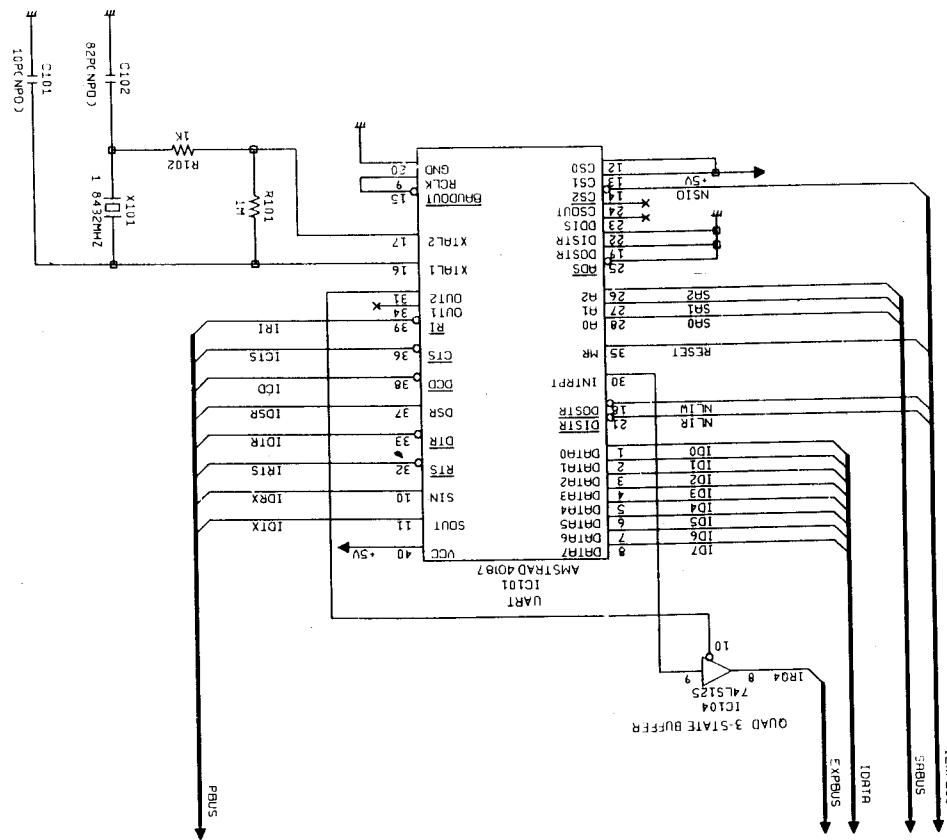
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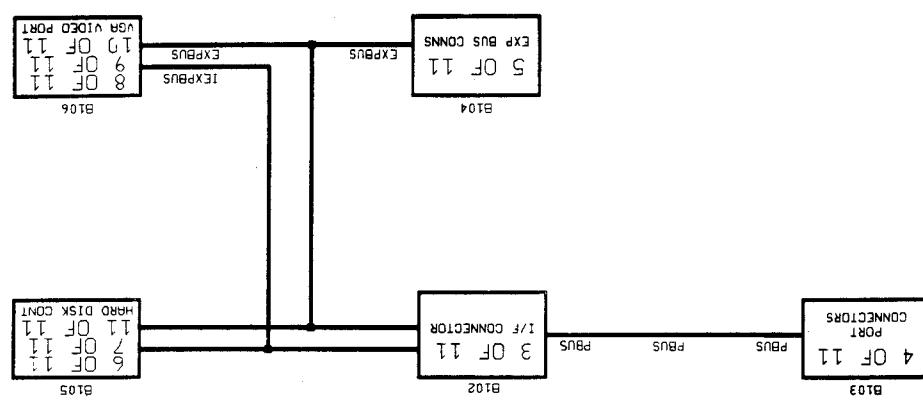
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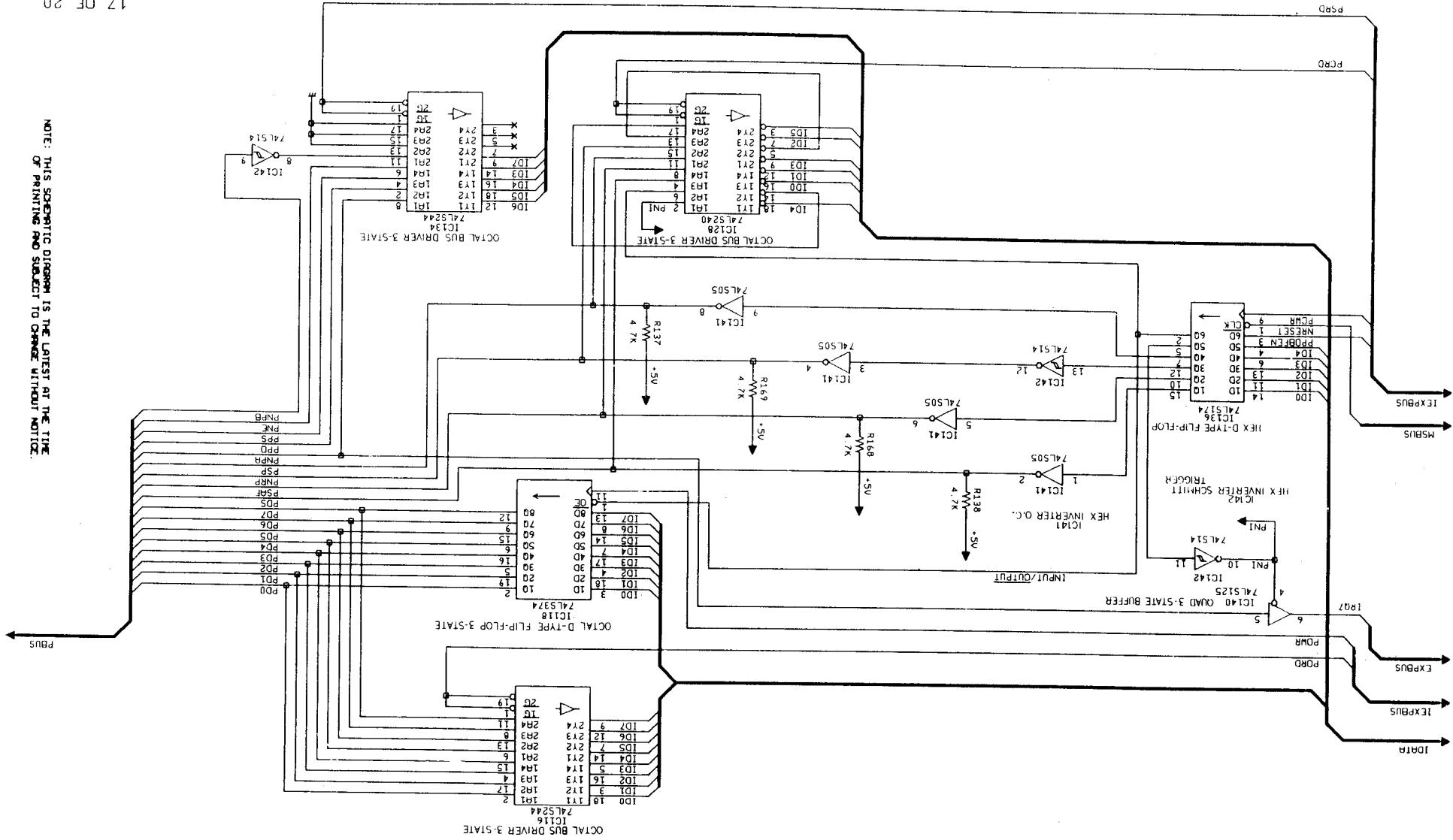
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INTERCONNECTION DIAGRAM

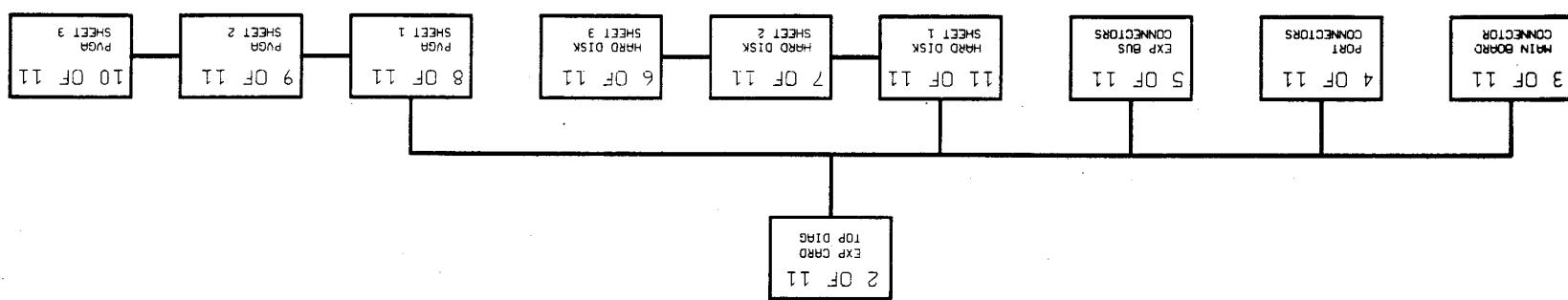


CHASSIS SCHEMATIC DIAGRAM

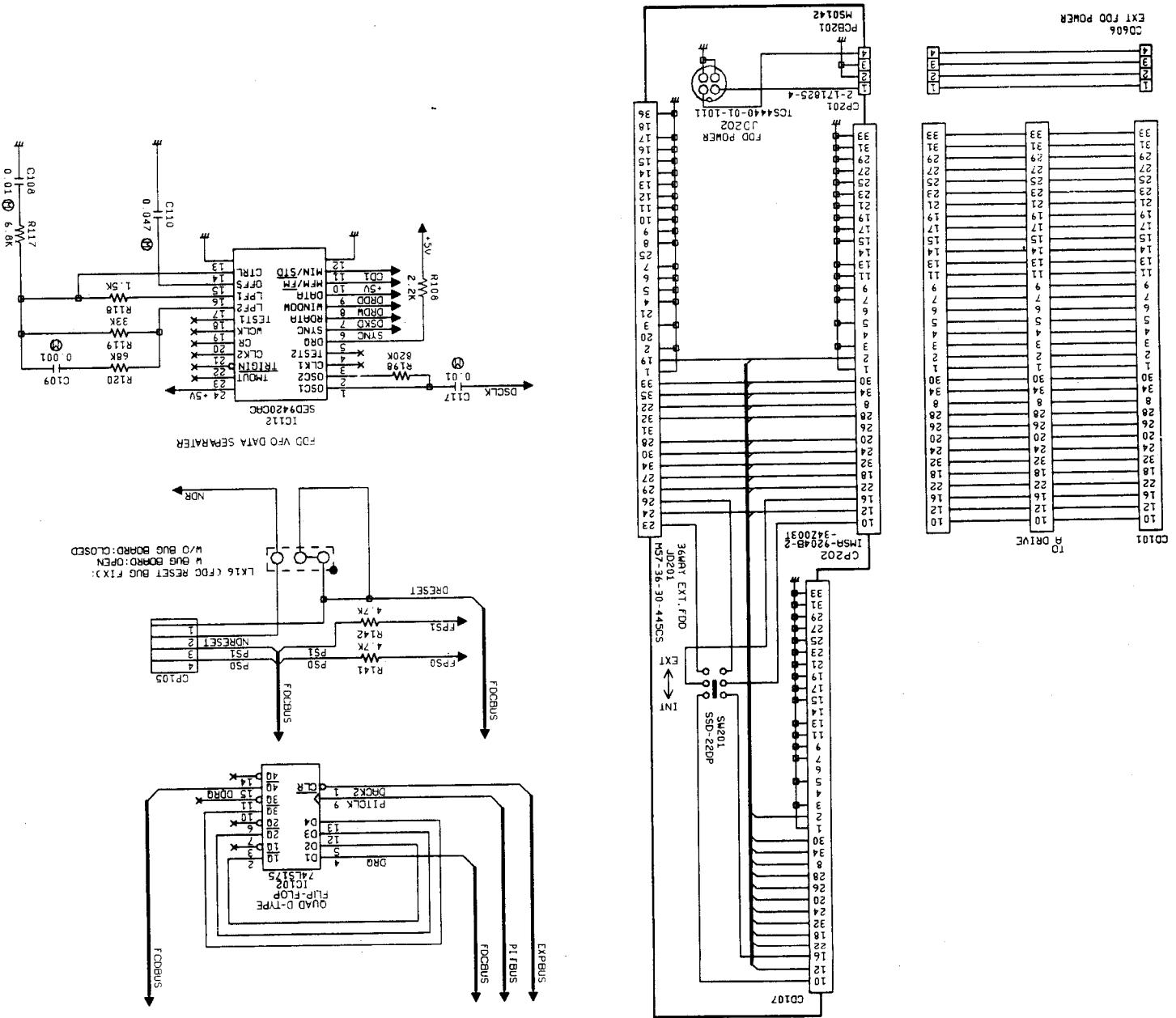


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

INTERCONNECTION DIAGRAM



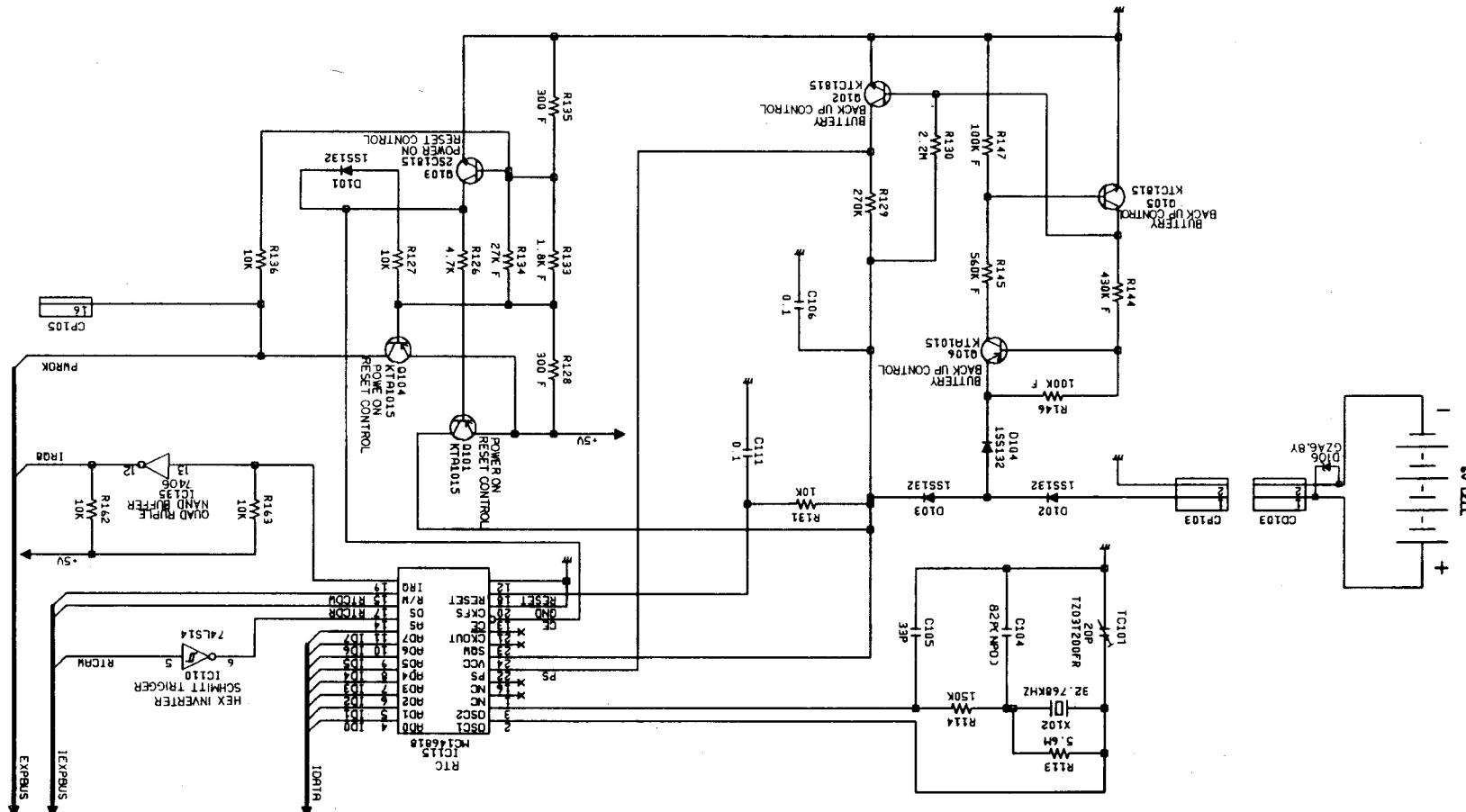
CHASSIS SCHEMATIC DIAGRAM



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

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CHASSIS SCHEMATIC DIAGRAM



NOTE: F, G, H, I, AND J MARKED AROUND THE PAR
IN THE SCHEMATIC DIAGRAM INDICATES

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

THE FOLLOWING ERROR RATE.
 $F: \pm 1\%$, $G: \pm 2\%$, $H: \pm 3\%$, $I: \pm 4\%$, $J: \pm 5\%$

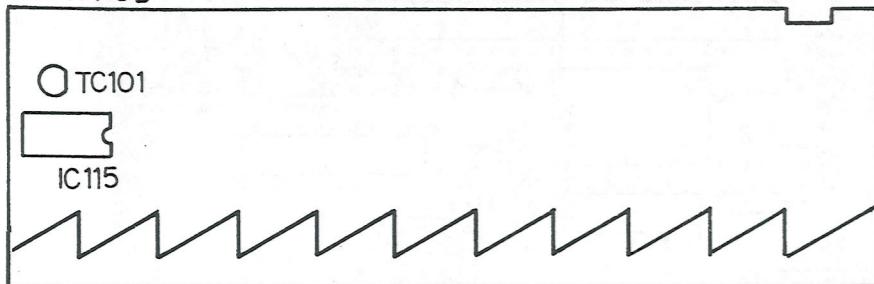
MEMORY P.C.B.

PC2386 ALIGNMENT INSTRUCTIONS

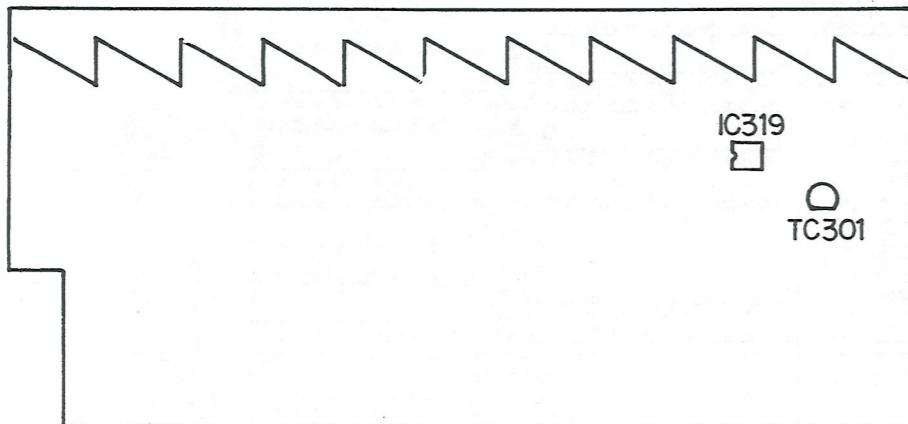
STEP	FUNCTION	SIGNAL IN	SIGNAL OUT	METHOD	REMARKS
1.	+5V D.C. Adjustment.	—	—	Connect D.V.M. to Test Point A & Ground. Adjust VR604 to read 5.00V ± 0.05 V.D.C.	Refer to Fig. A.
2.	+12V D.C. Adjustment.	—	—	Connect D.V.M. to Test Point B & Ground. Adjust VR603 to read 12.00V D.C. ± 0.05 D.C.	Refer to Fig. A.
3.	VCO Cont. Voltage Adjustment.	—	—	Connect D.V.M. to Pin 6 of IC316. Adjust TC301 to read 3.5V D.C.	
4.	Primary Protect Adjustment.	—	—	Turn VR601 anti-clockwise till the protection starts to cut in. Turn back a little to make it inactive.	
5.	R.T.C. Adjustment.	—	—	Connect Odometer to Pin 21 of IC115. Set the odometer to 0.2 sec/day setting and read "0.00" using TC101.	

MAJOR COMPONENTS LOCATION GUIDE

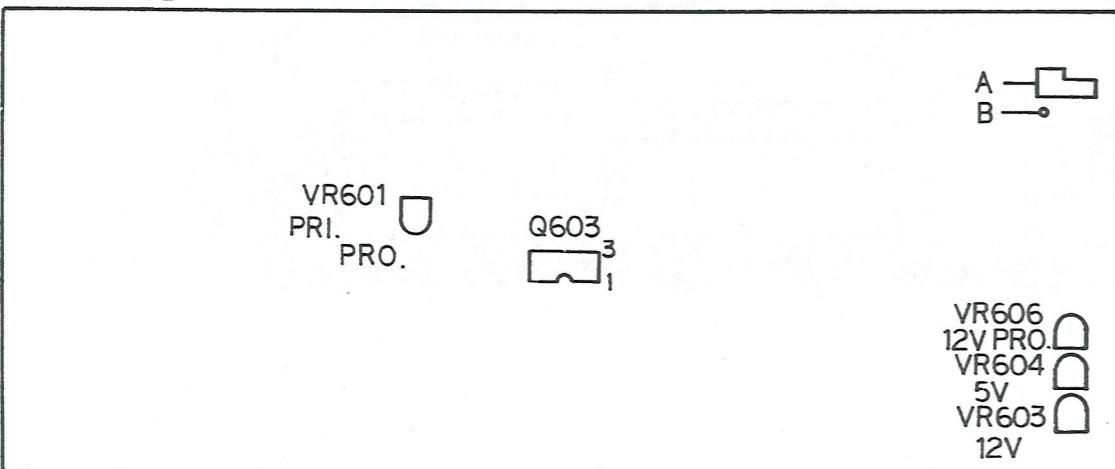
MAIN PCB



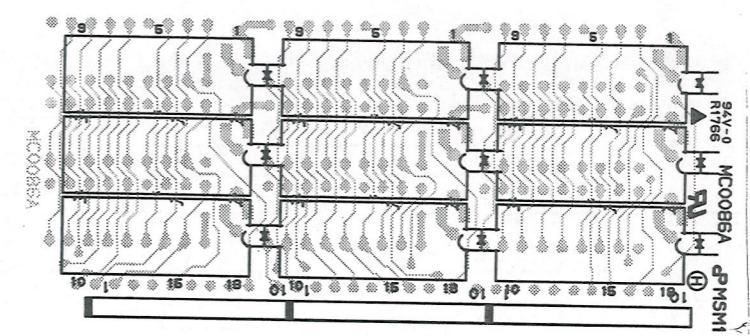
EX.PCB



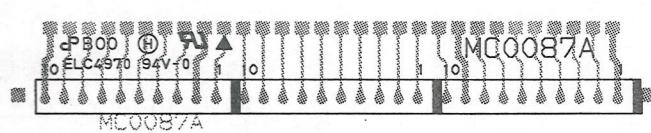
POWER PCB



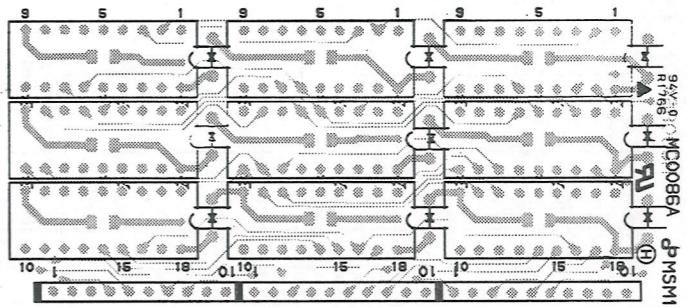
Top View



Top View



Bottom View

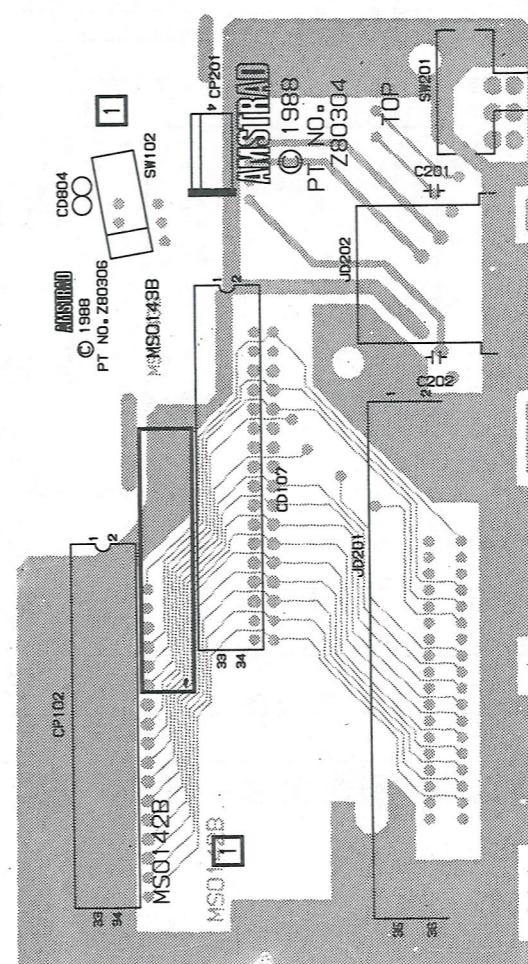


Bottom View

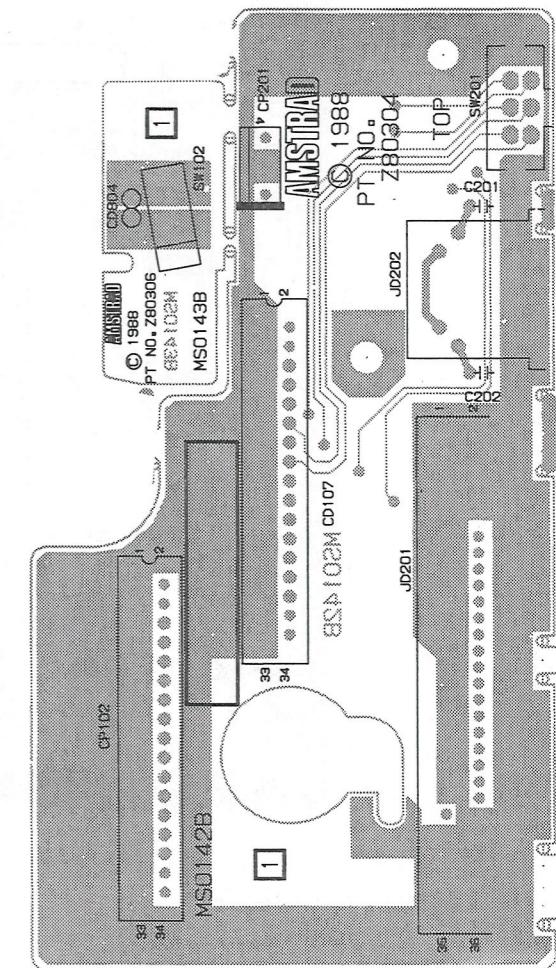


FDD EXPANSION SWITCH P.C.B.

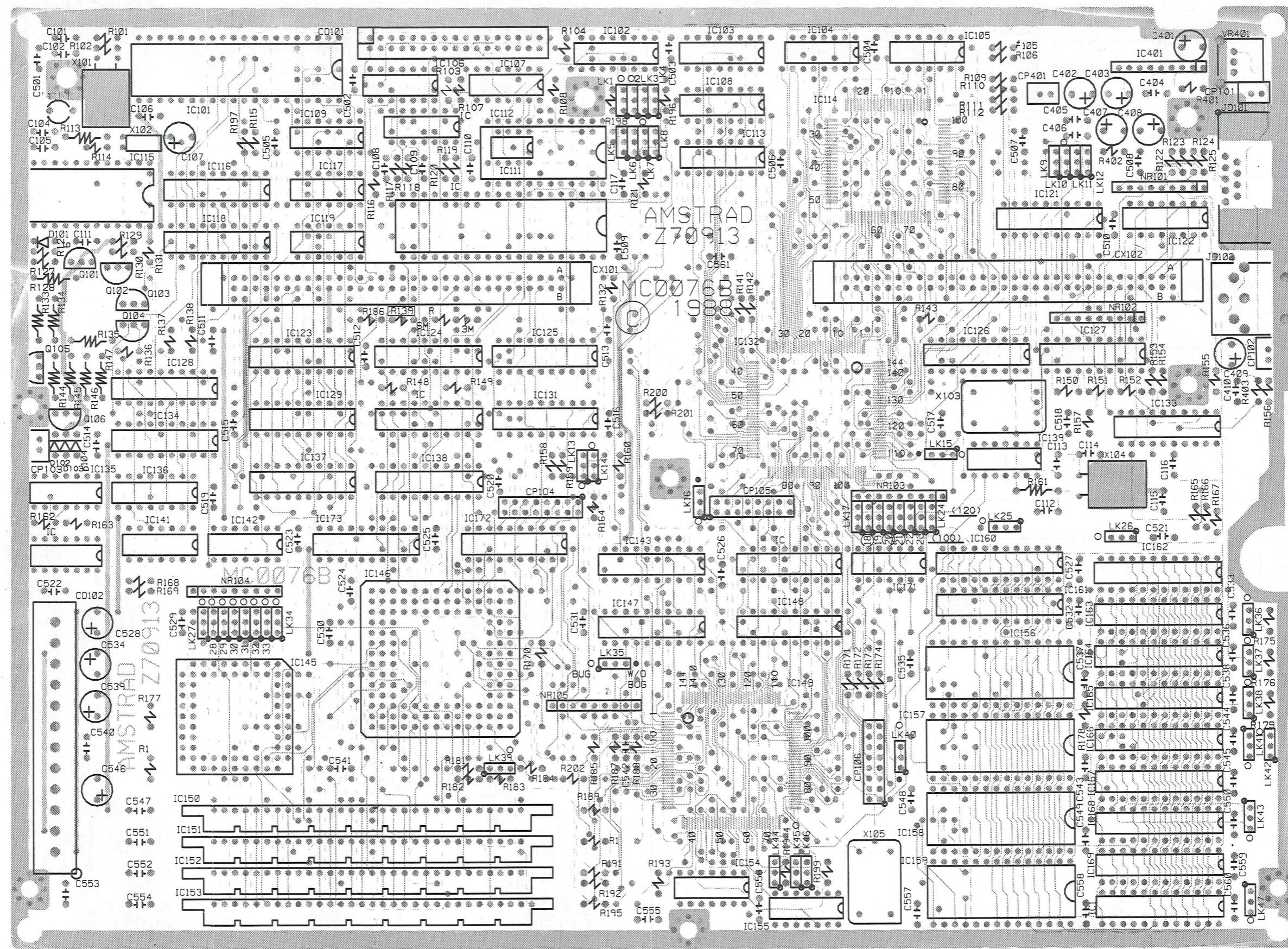
Top View



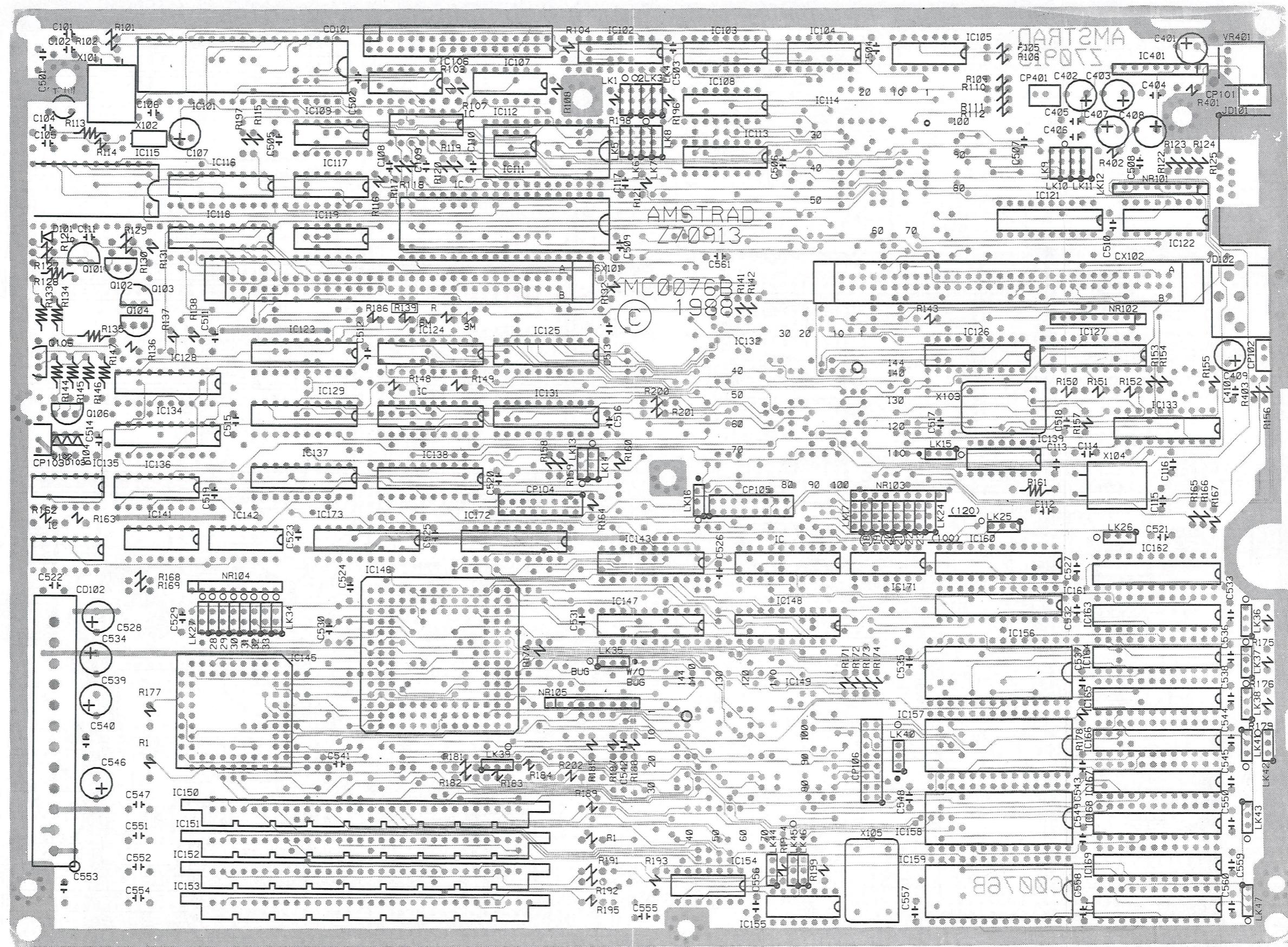
Bottom View



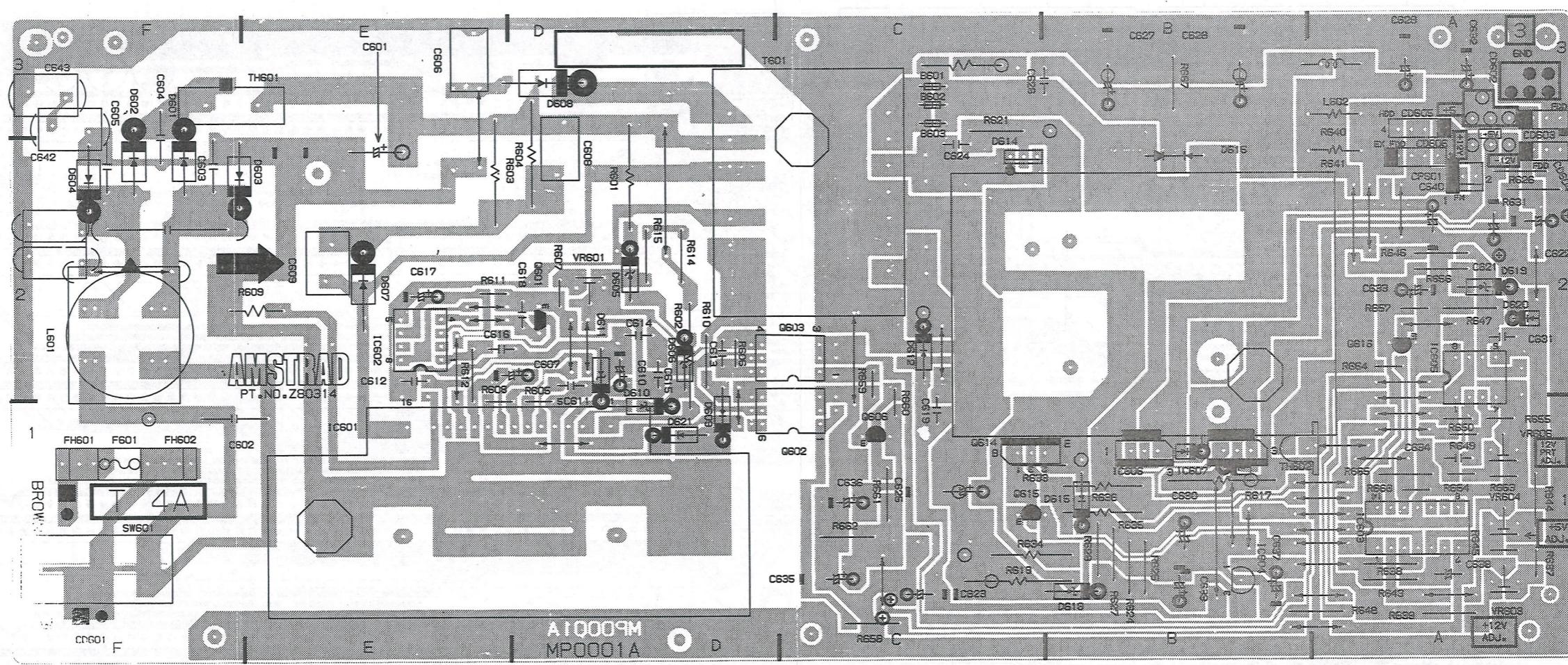
MAIN P.C.B. (Top View)



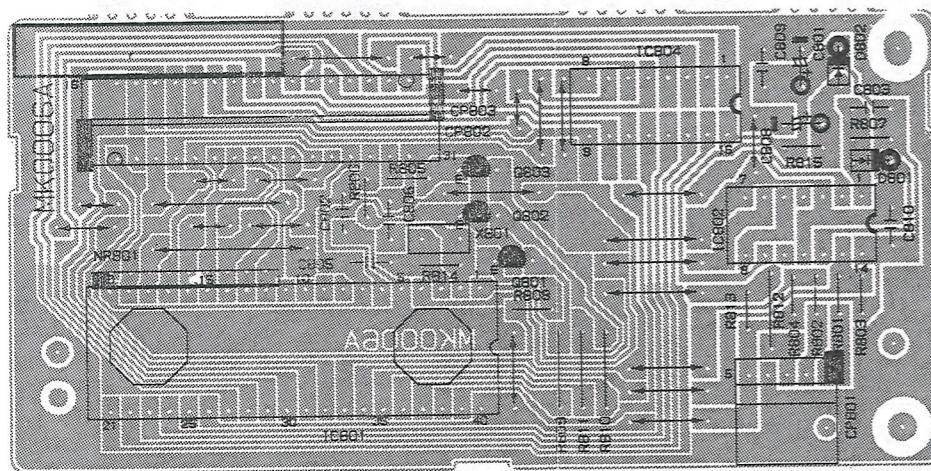
MAIN P.C.B. (Bottom View)



POWER P.C.B.

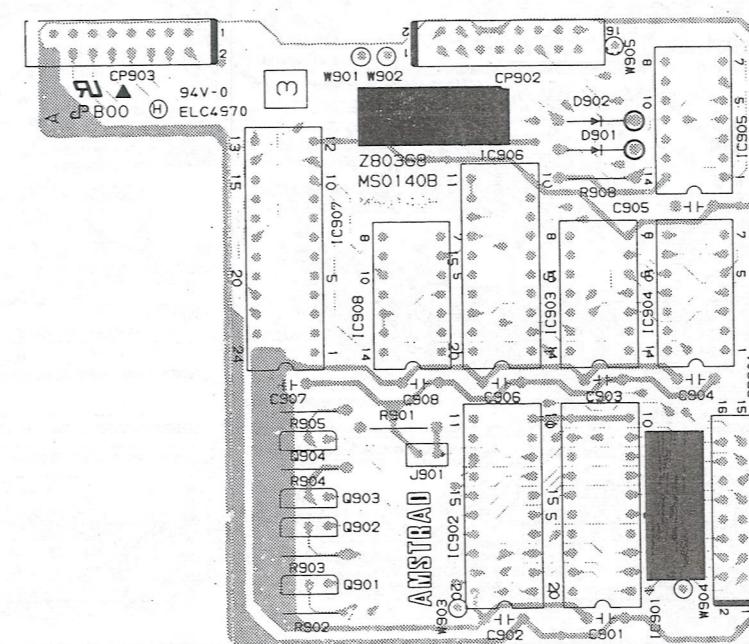


KEYBOARD P.C.B.

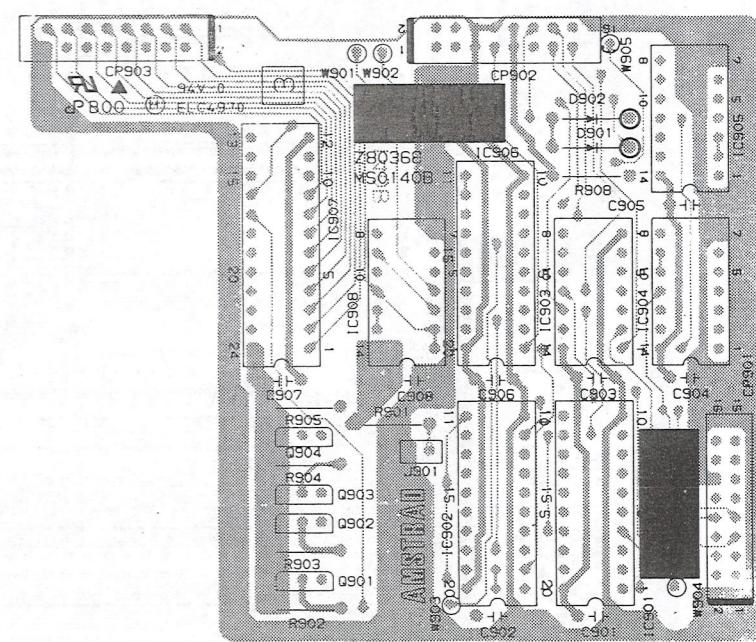


Top View

BUG P.C.B.



Bottom View



NOTE: Bug P.C.B. will change between first 30,000 units and next 30,000 units.